A CASE STUDY OF TWO RAIL-TRAILS

A Thesis

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by

Anisha Arabolu

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ABSTRACT

With the rapid development of private mobilization, a number of rail beds have been abandoned. The adaptive reuse of these rail beds into recreation corridors involves a number of factors and is an ongoing historic preservation effort in the country. The two rail-trails studied in this work are the South Hill Recreation Way Trail in Ithaca, New York that has been completed and is currently in use and the Cresheim Valley Trail in Philadelphia & Montgomery Counties, Pennsylvania which is proposed for future use. They are studied and compared with one another to understand the advantages and disadvantages of planning and preservation that arise and their effect on the surroundings. The planning, preservation, implementation and interpretive strategies used in these trails are analyzed to understand and conclude what other details may be required to enhance the usability of the trails.

BIOGRAPHICAL SKETCH

Anisha Arabolu earned her Bachelor of Architecture degree from SRM University, Chennai, India in 2010. She will be graduating with her Master of Arts in Historic Preservation Planning degree from Cornell University in 2014. While pursuing her degree, she has been a member and part of the Preservation Studies Student Organization and also worked as a Teaching Assistant for the Historic Preservation Planning Program. Anisha interned with the National Railway Historical Society in 2013. After completion, she hopes to work in the historic preservation field for a Conservation firm to gain knowledge and practical experience.

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CHAPTER 1. INTRODUCTION

Throughout history, lands have been explored by pathways and trails. Movement has always been an integral part of a person's nature, whether it is in the past or the present. Walking across terrains established crude walkways and networks that evolved into trade routes and established transportation pathways. These initial routes have always been an inspiration and an established safe path for future movement, and this led to the modern transportation system of turnpikes and highways being superimposed over the traditional paths.

The growth of transportation led to the settlement of communities along established routes. People in cities, towns, villages and hamlets across the country continuously strive to improve their quality of life by developing and connecting various transportation networks and trail systems. Highways and railways emerged as a means of connecting the different communities. Over time, with further advancement of technology, private mobilization became the norm leading to the eventual decline and abandonment of the rail lines. These abandoned rail beds make excellent multi-use trails that provide opportunities for the people to walk, bike, exercise and experience the outdoor recreation facilities.

Designing "rail-trails" requires an effective planning framework. The design is based on land uses, documenting available natural resources and infrastructure, planning efforts, research funding possibilities, land acquisition methods, community involvement, volunteer efforts and interpretive objects. The two trails chosen for this study are the South Hill Recreation Way rail-trail in Ithaca, New York and the

Cresheim Trail in Philadelphia and Montgomery Counties, Pennsylvania. Both are walking and biking trails designed on an abandoned railroad line. While the former is a completed trail, the latter is a proposed one. The study focuses on the study and comparison of the trails history, design, construction, implementation, historic preservation, conservation practices, tourism and management.

Methodology

The first step to writing the thesis was to collect as much information and data regarding the topic as possible from Cornell University's library sources, Town of Ithaca Planning Department and websites relating to the trails in Ithaca and Philadelphia. The library sources included historic maps, topographic/ terrain maps and aerial photographs were surveyed from the collections available at The History Center, Historic Ithaca, Olin Library Maps Collection, Greater Philadelphia GeoHistory Network and Google Earth.

After pooling the information, considerable research was done on the past efforts of rail-trail construction through reading books, theses, newspaper articles and journals. Printed sources included the documents available at the Town of Ithaca Planning Department, The History Center, Historic Ithaca and the *Feasibility study for the Cresheim trail* by Thomas Campbell & Co. Architects.

Some books that give detailed information regarding rail-trails are *Trails for the Twenty First Century* by the Rails-to-Trails Conservancy; *Heritage Trails – Strengthening a Regional Community* by the United States Department of the Interior; and *Converting Rails To Trails A Citizen's Manual for Transforming Abandoned Rail Corridors Into Multipurpose Public Paths* by the Rails-to-Trails Conservancy. This

data was then compiled to provide an outline of the work that goes into rail-trail planning and design.

The next step of the data collection was accomplished through interviews that were conducted with the people associated with the chosen trails and a review of the plans. For the South Hill Recreation Way rail-trail in Ithaca, New York, information was collected through interviewing Professor George R. Frantz, Visiting Lecturer at Cornell University, City and Regional Planning Department and formerly employed at the Town of Ithaca Planning Department. For the Cresheim Valley rail-trail in Chestnut Hill West, Pennsylvania, Susan Dannenberg and David Dannenberg were interviewed representing The Friends of the Cresheim trail.

Field recording included photographing the relevant objects on-site. This included a quick survey of each of the areas and its surroundings. Geographic Information Systems (GIS) was used as an effective method to combine historic maps with existing GIS maps for analysis and better visual interpretation of the trails allocation and its surroundings. The software used for creating GIS maps is called ArcGIS.

Chapter Introduction

The thesis has a number of chapters dealing with the different aspects of rail-trails. In the second chapter, advocacy for rail trails is explained. Advocacy for the trails is required to garner support and help in its preservation. A number of federal, state and local organizations, non-profit corporations and individual support is required for the planning, design, implementation and even after the completion of a rail trail.

The third chapter elucidates the various features or characteristics that can be found on a railroad right of way, which must be documented prior to planning or designing the trail. The rail bed would have a number of features such as the trail tracks, the gradation of the rail bed, station houses, bridges, tunnels and canals that may have historic or archeological value associated with it. An accurate description of the site and its surroundings such as the site topography, landscape features, waterscapes and flora and fauna must be documented and preserved.

The fourth chapter covers local support for the rail trail, the different types of funding available for a rail trail and implementation techniques used for planning and construction. Local support can be gained by contacting various trail advocates, organizations, meeting with officials in charge of the trail project, contacting individuals interested in rail trails and by using the media. The major local support that can be gained is the support of the homeowners who live close to the trail. Constructing a rail trail requires a large amount of funds for trail costs and maintenance. These funds are available through federal, state or local means. A number of funding options are explored in the chapter. The implementation of the trail looks at the corridor design layout. Various design features are considered such as ownership status, connections to nearby trails and communities, trail features, intersections. crossings and views.

The fifth chapter is the South Hill Recreation Way Trail case study. The trail lies in Ithaca, New York and was built on the abandoned Cayuga & Susquehanna Railroad. The chapter explores the history of the railroad and the trail, the design process by Ithaca City Department of Planning, easements required for acquiring the

land and the different design considerations of the completed trail such as physical measurement of the trail, its geographical location, access points, general condition of the rail bed, topography, and different points of special interest, proximity to service facilities, maintenance, management and signage.

The sixth chapter elucidates the second case study, the Cresheim Valley Trail in Montgomery County, Pennsylvania. The proposed trail is to be built on the abandoned rail beds of the Pennsylvania Railroad, Reading Railroad and the Cresheim branch. The chapter looks at the railroad history, the design process and the design proposed by the Friends of the Cresheim Trail and Campbell Thomas and Co. Architects. The design considerations of the trail similar to the fifth chapter are investigated.

In the seventh chapter, both case studies are compared to each other in terms of trail uses, general condition, trail benefits, cultural features, historic value, conservation practices, interpretive strategies, relationship to other trails, tourism, exhibits and management. Based on the comparisons, strategies useful for both trails are recommended and concluded in the eighth chapter.

CHAPTER 2. RAIL TRAIL ADVOCACY

Introduction

Any project requires advocacy and support for its completion and success. This support can be found in various forms, be it local, state, federal, private or public. A variety of individuals, businesses, government agencies, non-profit organizations, stakeholders, and landowners would be interested in the planning, design and construction of trails. Building rail-trails across the country is not an easy process and having advocates greatly helps to move the project in the right direction. This chapter focuses on the advocacy in Rails to Trails initiative.

Rails to Trails Movement

The Rails to Trails movement began in the 1960s with the idea of converting abandoned or unused rail tracks into biking paths and hiking trails. It was a smart idea to reuse the available space that was already graded and leveled. The movement acted to support touring by winding around the bridges, tunnels, abandoned mills, switches and any other structures along the track path.[1] The movement gained recognition and eventually became a large scale preservation, environmental and conservation effort.

The backcountry trails of the 1960s were succeeded by the greenway movement with an emphasis on multiuse trails through the 1970s and 1980s. In 1988, the Rails to Trails Act allowed for banking the rail corridors, thereby allowing rail

[1] Rails-to-trails Conservancy website http://www.railstotrails.org/ourWork/trailBasics/railTrailHistory.html Accessed February 9, 2014.

corridors to be used as future railroads or for other purposes like outdoor recreation.[2] Since then various initiatives like the *Trails for all Americans* and the *Vision for Trails in the Twenty-First Century* helped to advocate and further the trail movement.[3] In 1980s to 1990s, organizations like the *Rails-to-Trails Conservancy* and the *Triangle Rails-to-Trails Conservancy Inc.* were established with emphasis on heritage tourism. During the mid 1990s, various corporate, business and non-profit organizations began showing their interest in trail activities leading to the establishment of the American Discovery Trail (ADT).[4] The ADT is a 501 (c) (3) non-profit organization and the nation's first coast-to-coast trail for non-motorized vehicles.[5] It connects 5 National Scenic, 12 National Historic, 34 National Recreational Trails, Urban Centers, 14 National Parks, 16 National Forests, and 10,000 sites of historic, cultural and national significance.[6] The ADT strives to improve the trail experience continuously and the availability of abandoned rail corridors helped the growth of rail-trails nationwide.

National Survey on the Recreation and Environment

The National Survey on the Recreation and Environment (NSRE) was begun by National Forest Service of the United States Department of Agriculture (USDA) in 1960. Its purpose is to collect data on outdoor recreational activities, participation,

[2] The Library of Congress. *Federal Railroad Rights of way*. http://congressionalresearch.com/RL32140/document.php Accessed February 10, 2014.
[3] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania*. United States Department of the Interior, 1995, Page 3.
[4] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania*. United States Department of the Interior, 1995, Page 3.
[5] American discovery Trail website http://www.discoverytrail.org/ Accessed March 23, 2014.
[6] American discovery Trail website http://www.discoverytrail.org/ Accessed March 23, 2014.

and any other related data for the citizens. Various surveys have already been conducted in 1965, 1970, 1972, 1977, 1982-1983, 1994-1995, and 1999-2002.[7]

The American's Participation in Outdoor Recreation Report of 1999-2002 surveyed individuals of 16 years and older who participated in any type of outdoor recreational activities. These activities included land based (bicycling, mountain biking, hiking, equestrian, backpacking, camping, nature trail or zoo, photography, bird watching, hunting), water based (boating, sailing, fishing, canoeing, water skiing, swimming, snorkeling, scuba diving), and snow-and-ice based activities (skiing, snowboarding, snowmobiling). The bicycling and trail activities ranged the highest with 88.3 percent proving that many individuals still prefer to bike or hike as an recreational activity.[8]

Advocacy Organizations

The Rails to Trails Movement helped to advocate the concept of reusing rail beds as recreation trails. One of the organizations that was created based on this was the Rails-to-Trails Conservancy. Eventually, a number of other organizations had also started. The following few chosen organizations other than the Rails-to-Trails Conservancy organization, are based in New York and Pennsylvania.

a. Rails-to-Trails Conservancy

The Rails-to-Trails Conservancy is a 501 (c) (3) non-profit organization that began in 1986 to help restore, preserve and convert abandoned or unused rail tracks, pathways and right-of-ways into hiking and biking paths nationally. The organization

[7] United States Department of Agriculture – National Survey on the Recreation and Environment http://www.srs.fs.usda.gov/trends/nsre-directory/index.html. Accessed February 9, 2014

[8] American's Participation in Outdoor Recreation: Results from NSRE (With weighted data)(Versions 1 to 13) Page 3.

was established after the National Trails System Act was passed into law and has been responsible for converting at least 20,000 miles of rail-trail throughout the country.[9] The head office is located in Washington D.C with branch offices in Florida, California, Ohio, and Pennsylvania. The Conservancy has approximately 80,000 members across the country and strives to protect and enhance the environment, transportation, economy, neighborhoods and health of the country and its people.[10] The organization publishes a quarterly magazine for its members with details of existing trails, planned trails and member experiences.[11] In 2000, the Rails-to Trails Conservancy established the *www.trailink.com*, a trail-finder that uses GPS to give the exact coordinates along with basic information such as the length of the trails, maps, photographs and user experiences. More information regarding the organization can be found at *www.railstotrails.org*.

b. New York State Office of Parks, Recreation & Historic Preservation

The New York State Office of Parks, Recreation & Historic Preservation coordinates and develops statewide plans for trails. It works with other partners, local groups and trail advocates to maintain, preserve and develop the extensive trail network in New York.[12] It works with the New York State Trails Council, a citizen advisory committee made up of representatives from national, statewide or regional

[9] Rails-to-Trails Conservancy website http://www.railstotrails.org/aboutUs/index.html Accessed February 9, 2014.
[10] Rails-to-Trails Conservancy website http://www.railstotrails.org/aboutUs/index.html Accessed February 9, 2014.
[11] Rails-to-Trails Conservancy website http://www.railstotrails.org/aboutUs/index.html Accessed February 9, 2014.
[12] New York State Office of Parks, Recreation & Historic Preservation. http://nysparks.com/recreation/trails/. Accessed June 17, 2014.

trail activities, organizations, groups or individuals.[13] The representatives participate in discussions and issues in meetings with all levels of government and the public. The Trail Council also provides technical assistance and support through the Office of Parks, Recreation and Historic Preservation and the Department of Environmental Conservation.[14]

c. Parks & Trails New York

The Parks & Trails New York (PTNY) established in 1985 is one of the leading advocates for parks and trails in New York. The organization brings together communities, grassroots movements, organizations and other advocates of greenways, bike paths, trails and open space for improving and better stewardship of New York State Parks.[15] The organization supports community trails by promoting bicycling, sustainable tourism, economic development and community development. PTNY's advocacy measures also extend towards updating and explaining the legislative procedures, highlighting those bills that affect trail development. The 'Campaign for Parks' and 'New York State Trails Coalition' brings together individuals, nonprofit Friends group organizations, stakeholders, trail groups, and local governments for advocating trails, increased funding, and to work on policies and programs that can

[13] New York State Office Parks, Recreation & Historic Preservation. http://nysparks.com/recreation/trails/trails-council.aspx. Accesed June 17, 2014.
[14] New York State Office Parks, Recreation & Historic Preservation. http://nysparks.com/recreation/trails/trails-council.aspx. Accesed June 17, 2014.
[15] Parks & Trails New York. http://www.ptny.org/about/index.shtml. Accessed June 14, 2014.

encourage statewide trail building.[16] The PTNY also has a policy for rail corridor use. It strongly supports converting abandoned rail beds into recreational trails.[17]

d. Pennsylvania Department of Conservation and Natural Resources

The Pennsylvania Department of Conservation and Natural Resources (DCNR) maintains and preserves Pennsylvania's 120 state parks and resources. It develops the Pennsylvania Outdoor Recreation Plan with the help of the Pennsylvania Trails Advisory Committee and the Technical Advisory Committee.[18] The goal of the Outdoor Recreation Plan is to recommend methods to enhance outdoor recreation through community involvement and also to develop a statewide land and water trail network.[19] DCNR has a number of Bureaus under it: Bureau of State Parks, Forestry, Topographic & Geological Survey, Recreation & Conservation, Facility Design & Construction, Human Resources, and Administrative Services.[20] The Bureau of Recreation and Conservation (BRC) links various partners, communities and organizations across Pennsylvania, that are interested in local recreation projects, trails, greenways, heritage parks, open space and river conservation, and environmental educational programs.[21] BRC also provides grants and local support to the partners and organizations, in addition to trail advocacy through publications,

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[16] Parks & Trails New York. http://www.ptny.org/advocacy/index.shtml. Accessed June 14, 2014.
[17] Parks & Trails New York. http://www.ptny.org/advocacy/Rail%20Corridor%20Use%20PTNY%20Policy.pdf. Accessed June 14, 2014.
[18] Pennsylvania Outdoor Recreation Plan. http://www.dcnr.state.pa.us/brc/recreation/scorp/index.htm. Accessed June 16, 2014.
[19] Pennsylvania Outdoor Recreation Plan. http://www.dcnr.state.pa.us/brc/recreation/scorp/index.htm. Accessed June 16, 2014.
[20] Pennsylvania Department of Conservation and Natural Resources. http://www.dcnr.state.pa.us/discoverdcnr/ataglance/bureaus/index.htm. Accessed June 16, 2014.
[21] Pennsylvania Department of Conservation and Natural Resources. http://www.dcnr.state.pa.us/brc/aboutus/index.htm. Accessed June 16, 2014.

plans, reports, and newsletters. BRC also has an online feature called 'BuildPAtrails', which helps a user to find any PA trail, its location, status or any other data associated with the trail through maps and GPS in a mobile app.[22]

e. North Eastern Pennsylvania Trails

The Rail-trail council of North Eastern Pennsylvania Trails (NEPA), Inc. is a non-profit organization that helps to develop rail-trails in the Northeastern Pennsylvania region. The organization was started in 1991. They began purchasing local abandoned rail beds and eventually acquired 38 miles of the Delaware & Hudson Rail bed and also an easement to use the Ontario & Western Rail bed as a recreational trail.[23] The organization advocates the use and benefits of rail trails through monthly meetings with the members and the public, and quarterly newsletters informing the progress of the rail trails and its improvements.[24]

f. Adopt-A-Trail Program

The Adopt-a-Trail program allows volunteers, individuals or organizations to adopt a section of the trail for maintenance and improvement purposes such as trash pick-up, mowing, trimming bushes, removing fallen branches, repairing trail surface, maintaining signs, and painting. Volunteers may also be asked to participate in trail planning, local trail map development and historic education activities.[25] The Adopt-

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[22] BuildPAtrails. http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20028120.pdf. Accessed June 16, 2014.

[23] Rail Trail Council of Northeast Pennsylvania. http://www.nepa-rail-trails.org/index.php?pro_mode=history_rtc. Accessed June 11, 2014.

[24] Rail Trail Council of Northeast Pennsylvania. http://www.nepa-rail-trails.org/index.php?pro_mode=history_rtc. Accessed June 11, 2014.

[25] New York State Canals, Adopt-A-Trail program. http://www.canals.ny.gov/trails/adopt.html. Accessed June 17, 2014.

A-Trail program is already in place in many organizations that support rail trails such as the New York State Canals, Appalachian Mountain Club, PA Dutch Council BSA and Colorado Trail Foundation.

Conclusion

The support of advocates, authorities and volunteers is always a bonus to the construction of rail-trails. Rail trail advocacy acts as a catalyst supporting historic preservation and adaptive reuse. The existence of various organizations and individuals interested in recreation trails boosts the popularity and usage of rail trails. The Rails to Trails Movement and organizations like The Rails to Trails Conservancy, New York State Office of Parks, Recreation and Historic Preservation, Pennsylvania Department of Conservation and Natural Resources and initiatives such as the Adopt a Trail Program are excellent examples of good advocacy. The non-profit Friends of the trails groups are also excellent advocates for rail trail conversion. They help to connect the citizens with government bodies by acting as a platform for voicing opinions and suggestions. The online presence of all advocacy groups: national, statewide, regional and individual has further helped to reach out to the public. Their publications through trail plans, reports, and newsletters regarding any aspect of planning, designing and preserving the trails helps educate the people. They strive to ensure the conversion of abandoned rail beds to trails acts as a positive impact to the community and the country as a whole.

CHAPTER 3. DOCUMENTATION AND DESIGN OF THE RAIL-TRAIL

Introduction

A physical assessment and documentation of the site and its surroundings is a prerequisite to any design or planning process. This includes an accurate description of the landscape, natural elements, developed or under-developed areas, facilities and layout of the corridor. The documentation will be used for analyzing the appropriate location of the trail and its importance to any adjacent structures. The documentation and design would incorporate any written descriptions, comments, photographs and videos. This chapter discusses the accurate inventory of the access points and on-site features that will be helpful to pinpoint the various elements that can be used in the trail design as well as general characteristics of railroad corridors.

Documentation of the Unique Characteristics of a Railroad right-of-way

A railroad right of way is an excellent means for constructing a trail. It has certain characteristics that are very helpful for design, construction and implementation of the trail. The right of way already has some leg work completed beforehand hence construction of the trail from scratch is unnecessary. The characteristics associated with a railroad right of way are,

a. Linearity

Long narrow strips of land are ideal for open space preservation.[26] An abandoned transportation corridor is one of the best examples of a narrow strip of open space. They are usually between 50 and 100 feet in width and typically cut

[26] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 5.

across urban, industrial, commercial, residential, and open areas.[27] They are continuous strips without too many obstacles or obstructions. Thus, it provides easy access to a great number of people as they engage in a wide variety of activities.

b. Roadbed

When railroads were built, the rail lines were constructed with long, gentle grades to allow the heavy cars to maneuver through the terrain easily. The same moderate grades that minimized the stress on engines are appreciated by trail users, particularly cyclists.[28] The typical construction technique was to raise the center of the railroad right of way using ballast or crushed rock, slag, volcanic ash, or some other porous material that served to elevate the track, keep it well drained, and hinder the growth of weeds.[29] Drainage ditches were dug along either side of the roadbed to help drain rainwater. Scenic byways were created by raising the surface of the rail bed above the surrounding countryside, hence allowing a better view of the scenery, while drainage and weed problems are kept to a minimum. Generally, the only work needed after the rails and ties are removed was the laying the trail.

c. Built Features within the Corridor

Built features associated with the rail corridor such as bridges, tunnels and abandoned depots or stations are structures that are significant to the trail. They are objects that hold historic and cultural value. These can be used as a part of the trail's educational program for archeological, architectural and historic interpretation. Track

[27] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 5.
[28] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 6.
[29] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 6.

charts may also be used for documentation purposes. These charts show the track's alignment, number, locations, and degrees of curvature; steepness of grades; types of bridges; location and character of all structures (like wooden shelters and brick freight trains); sidings and yards; signals, tunnels, water tanks, and milepost designations; town populations; political subdivisions and grade crossings.[30]

i. Bridges, Tunnels and Canals

Bridges, tunnels and canals are examples of civil engineering feats of the past. On the trail right of way, they help create scenic and interesting views and paths. Railroad bridges across ravines, waterways or above built roads are often left intact along the abandoned right of way. Most of these structures have interesting construction techniques and historic merit or events associated with them.[31] They serve as a link with the past and many are certainly worthy of being preserved in their original condition.

ii. Station Houses

Thousands of buildings, ranging from small passenger and freight stations to huge union terminals, were built along the tracks. Many of these abandoned stations are of architectural merit, and preservationists all over the country are engaged in preserving and rehabilitating these structures. Old terminals are rehabilitated and reused as cultural centers, commercial facilities, restaurants or multi-purpose

[30] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 110.

[31] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 18.

transportation centers.[32] For example, The Delaware, Lackawanna & Western Railroad Station House in Scranton was rehabilitated into a hotel after its abandonment.

d. Multiple-Use Potential

Trails are not limited to one specialized activity. They can support a variety of uses on a year round basis. Walking, bicycling, jogging, horseback riding and backpacking can be conducted on abandoned right of way. Specialized activities such as picnicking, nature walks, hunting and bird watching can also be accommodated. Also, two winter sports of snowmobiling and cross-country skiing can take place where the winter snow cover and local regulations permit.

e. Low Cost

The use of old railroad right of way can be a very ideal financial bargain. Where no right of way previously existed, creating a recreation trail from scratch required immense expenditures.[33] These expenses could nearly stop the design and planning. It is generally necessary to negotiate separately with many landowners, and where the process breaks down, the powers of condemnation may need to be utilized. After the acquisition procedure is completed, the path must be cut through trees, brush, and existing structures before the actual construction of the trail bed and surface can begin. The abandoned rail bed is an alternative to starting from scratch. In terms

[32] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 7.
[33] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 8.

of acquisition, manpower, materials and energy an existing right of way proves to be less costly.[34]

Site Design

Before starting the design of a rail-trail, site surveys and site conditions need to be studied. The planning process requires an understanding of the trail concept, documentation of the site and features, the design of the master plan, construction techniques and methods, construction drawings, and implementation strategies.

a. Site Considerations

The site for any trail design must be inspected for a detailed survey and understanding of the layout. It includes the accurate description and documentation of the landscape's native elements, the built features of the corridor, the corridor's location in relation to other major natural or developed facilities, and the route or layout of the corridor through the community, region or state.[35]

i. Existing Vegetation

Any significant characteristics that help define landscape modifications and additions to the trail must be recorded. Growth retardants or poisons may have been used along the right of way to discourage plant growth.[36] The flora along a trail may be used for educational or interpretational experience for the users.

ii. Existing Soils

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[34] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 10.

[35] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 14.

[36] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 16.

The existing soil must be determined and the landscaping, drainage, surfacing, and appropriate types of structures associated with trail development need to be documented.

iii. Surrounding Topography

Different types of drainage controls needed to facilitate safe multi-use trail development may have been used.[37] The surrounding topography or slopes affect the amount of surface water flowing into and through the corridor. This must be taken into consideration during the design of the trail.

iv. Adjacent or Intersecting Streams

If the trail has any adjacent or intersecting streams, then it may be necessary to build a bridge, culvert or boardwalk to cross the area.[38] The existing access points to the streams are very important and must be considered. They can also have interesting scenic views. Such points may also allow for fishing and swimming.

v. Significant Natural Features

Lakes and ponds, rock outcroppings, old-growth forests, wetlands or other natural features are important features. Such natural features are the highlights of a trail and it will have to be defined whether they are publicly accessible or on private property.

b. Climate

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[37] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 16.

[38] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 16.

The weather conditions at the location of the trail affects the usability and safety of the trail users. Some trails may be used all year round or only at certain times when the weather allows.

c. Driveways and Access Points

These may be residential, commercial, or industrial access points to the adjacent properties along the trail. These access points may also be associated with cars, bicycles, pedestrians and other users. The frequency and use of the driveways, type of traffic, sight distance need to be studied.[39]

d. Animal and Plant Communities within the Corridor

The trail corridors may cut through the habitats of a variety of domesticated and wild animals. They may also pass through landscapes that may contain communities of rare or threatened plant species. If there are any animals along the route, they need to be catalogued and also the trail must be designed so as not to disturb and endanger their habitats.

Design Considerations

A rail-trail is planed and built through an urban, suburban or rural landscape after extensive survey and documentation of the site. A number of design considerations must be taken into account before planning and construction. The following are the main design considerations that help in the design of the trail.

a. Physical measurements

i. Approximate length and width in miles

[39] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 22.

b. Geographical location
    i. Proximity to users – location within a two hour drive from major population centers recommended
    ii. Proximity to state and local recreation facilities –access to municipal swimming pools, tennis courts, connection to other trails
    iii. Proximity to mass transportation – bus line, railroad stations, airports
c. General condition of the rail bed
    i. Presence or absence of rails and ties
    ii. Condition of ballast
    iii. Quality of drainage
    iv. Condition of bridges and trestles
    v. Amount of over growth
    vi. Extension of erosion, slides, or washouts
    vii. Presence of obstructions or hazards
d. Condition of title
    i. Fee simple
    ii. Easement
e. Topography
    i. Aesthetic qualities – interesting natural features
    ii. Opportunity for nature study – indigenous flora and fauna
    iii. Parallel waterways – rivers, streams, canals
    iv. Access points to waterways
f. Points of special interest

i. Historic areas – near Revolutionary War, Civil War, or Indian battlefields, railroad station houses of historical merit, railroad tunnels or bridges
ii. Unique scenic areas
iii. Picturesque communities

g. Proximity to service facilities
    i. Restaurants, parking, comfort stations, overnight lodging, and/or camping facilities accessible from right of way
    ii. Opportunity for development of comfort stations and/or picnic areas

h. Access points
    i. Access from road crossings without encroachment on private property

i. Maintenance and Management
    i. Opportunity for establishment of waste collection areas near roads wide enough to accommodate motorized vehicles for maintenance collection
    ii. Local trail and conservation groups that may be willing to volunteer aid in maintaining the facilities

Conclusion

The documentation of the trail elements and its surroundings can yield a number of elements that can be used to enhance the trail usage. The site and any site features need to be documented before designing the trail. The railroad right of way has a number of characteristics that should not be overlooked. Any built features associated with the railroad having historic and archaeological value such as station houses, bridges, tunnels and viaducts must be carefully documented and

photographed. An understanding of the trail surroundings such as the geographical features, topography and natural elements can also be used to target specific groups of users like geologists and nature enthusiasts along with bikers. By documenting the surroundings and the trail layout, picturesque views can be created by preserving the topography, landscape features and watershed areas. This can lead to a higher demand for the trail and be useful in gathering local support during the design process.

CHAPTER 4. LOCAL SUPPORT, FUNDING AND IMPLEMENTATION

Introduction

Advocacy is not the only factor that can help take a project off the drawing board. Local support is just as important. The opinions of the public and locals play a very important role in the design of the trail. They may be supportive or against the design. Hence garnering their support is necessary. Similarly, funding for trail implementation needs to be taken into account. A very expensive trail may not be in the interests of the public. A number of funding sources will be discussed in the chapter, which can help alleviate some of the costs incurred for trail implementation which include the land acquisition costs, fees, contract fees, materials, trail features, interpretive signs and trail maintenance.

Local Support

After collecting as much specific information on an abandoned right of way as possible, it is necessary to obtain strong local support for a successful rail-trail project. Local support can make or break a rail-trail project. It is difficult to get a project off the "drawing board" and into reality without the public approval. The following actions are suggested as a means of informing the public and generating enthusiasm,

a. Contact other potential tail advocates (bicycle clubs, hiking organizations, equestrian groups, youth organizations, grass roots organizations).
b. Present the idea to the planning and recreation agencies in the jurisdiction where the right of way is located. Be prepared with a map and other pertinent details.

c. Inform State legislators, Congressmen and Senators. Ask for their support and assistance.[40]

d. Contact local historical societies for more information on the surrounding area and built structures. This information would help in the creation of a heritage trail or be used in educational and interpretational activities. This information is generally collected during the survey and documentation of the rail bed before the planning of the trail commences.

e. Arrange for publicity by writing an informative article for the local newspaper highlighting the trail's potential and the resulting benefits for the local area.[41]

f. Ask for citizen support, and arrange for a meeting of interested trail advocates. Present an exhibit or maintain a booth at local or county fairs. Such meetings are generally set up at dedicated locations and announced beforehand in newspapers to gain local support.

g. Assist local park and recreation officials in presenting the proposal to the city or county.

h. Hike along the right of way with a group of interested and enthusiastic citizens. For example, the Friends of the Cresheim Trail organize walks along the proposed trail route so that interested citizens have a chance to understand the design layout and also help to give required input or feedback. It will also be beneficial to get an influential citizen or elected official to lead the walk-in.[42]

[40] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail, February 17, 2014.
[41] Interview with Professor George R. Frantz, Visiting Lecturer, Cornell University, February 3, 2014.
[42] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail, February 17, 2014.

i. Try to get people who live along the route involved to show how a trail would be beneficial to them as well as the community at large.
    i. Easy access for their own use
    ii. Beneficial to local commercial establishments – grocery stores, restaurants, bicycle shops
    iii. Community service aspects

j. If the trail could serve children on their way to school, request an opportunity to explain that at a local PTA meeting.[43] Stress the increased safety that would result from decreased conflict with automobiles.

k. If the trail could serve commuters on their way to work, explain the benefits to large employers in the community.[44] Arrange a meeting with people who might be interested in leaving their cars at home or in fringe parking areas and biking or walking to work.

l. Stress the environmental and health benefits. Trails help to reduce the cost of health care as bicycling or walking are regular to moderate intensity exercises that improve physical health and encourage community involvement.

Funding

Raising funds is imperative for the implementation of the trail plan. A single organization may not be able to shoulder the complete cost of the project themselves. Hence, funds are generally generated through other means. These funds may be available from the federal, state, private or public sectors. Also, partnerships between

[43] Campbell Thomas & Co. Architects. *A Feasibility Study for the Cresheim Trail*. 2008.
[44] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail February 17, 2014.

public and private sectors can also generate the required funding. Various grants and matching grants are available for both acquisition and development of recreation resources.

a. National Park Service

The National Park Service has a grant program under the National Park Foundation Grants and Programs. The National Park Foundation Grants and Programs aims to give funding for the conservation, preservation and enjoyment of its parks through youth and community outreach. Under this is a program called the Active Trails program that gives grants to parks, so that they can develop the trail through community engagement and development, recreational activities and restoration work.[45] For example, the Active Trails grant of $22,500 was recently awarded to the Palo Alto Battlefield National Historic Park, Texas to promote the historic and cultural value of the battlefield by using the 10 mile long trail following the historic route of the soldiers connecting the battle sites.[46] Another example is the Kids in Parks program, an initiative by the Blue Ridge Parkway Foundation, the Blue Ridge Parkway and the Blue Cross and Blue Shield of North Carolina Foundation, was awarded $15,500 to build two new trails on the Blue Ridge Parkway in Virginia.[47] The program was an initiative to get children interested in outdoor activities and the

[45] U.S. National Park Service. http://www.nps.gov/partnerships/NPF_grants_and_prgs.htm. Accessed February 4, 2014.
[46] National Park Service website http://www.nps.gov/paal/parknews/2014-active-trails-grant.htm. Accessed June 9, 2014.
[47] Kids in Parks Track Trail website http://www.kidsinparks.com/. Accessed June 9, 2014.

award will also be used for designing self-guided brochures regarding the trail for educational purposes.[48]

b. National Trails System Act

The National Trails System Act provided the framework for a national trails system. The Act directs the Secretary of the Interior to encourage States to consider proposals for trails on lands in or near urban areas when requesting financial assistance.[49] It urges the state park and recreation departments to inventory and evaluate abandoned railroad rights of way for inclusion in their statewide comprehensive outdoor recreation plans. These inventories are one of the prerequisites for receiving Federal grant assistance from the Land and Water Conservation Fund. The Land and Water Conservation Grant funding was established in 1965 to provide park and recreation opportunities to the citizens. These funds were generally used to acquire land or property additions or to build facilities in the national parks and forests by federal agencies.[50] The Great Allegheny Passage rail-trail was awarded $2,000,000 through the Land and Water Conservation Fund for rehabilitating the Big Savage Tunnel.[51] The rehabilitation of the tunnel provided connecting trails between the Pennsylvania, Maryland and Washington D.C.[52]

c. Federal Highway Administration – Recreational Trails Program

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[48] Kids in Parks Track Trail website http://www.kidsinparks.com/news-events/kids-parks-receives-grant-build-2-new-track-trails-parkway. Accessed June 9, 2014.
[49] National Trails Training Partnership https://www.americantrails.org/resources/feds/NatTrSysOverview.html. Accessed February 6, 2014.
[50] U.S. National Park Service http://www.nps.gov/lwcf. Accessed February 6, 2014.
[51] American Trails http://www.americantrails.org/resources/fedfund/LWCF-states-fund-trails.html. Accessed June 9, 2014.
[52] Great Allegheny Passage Rail-Trail Newsletter http://www.wvrtc.org/wvrtc/news/ata.html. Accessed June 9, 2014.

The Federal Aid Highway funds assists states by providing funds for the construction, reconstruction and improvement of highways and bridges on eligible federal aid highway routes and for other special purpose programs and projects. One of the assistance programs of the Federal Highway Administration is the Recreational Trails Program (RTP). This program aids in providing funding for states to develop recreational trails and trail-related facilities for both motorized and non-motorized recreational trail uses.[53] Each state administers its own program and the Recreational Trails Program Project database gives the listing of the various projects previously funded. The funds may be used for maintenance and restoration of existing trails, development and rehabilitation of trailside and trailhead facilities and trail linkages, purchase and lease of construction equipment, acquisition of easements or property for trails and operation of educational programs to promote safety and environmental protection related to trails.[54] The Lackawanna Heritage Valley Authority in Lackawanna County, Pennsylvania was awarded $48,000 to renovate and develop the Lackawanna River Heritage Trail by Pennsylvania's Department of Conservation and Natural Resources.[55] This award was a part of the $1.16 million that was distributed in 19 counties under the Recreational Trails Program in Pennsylvania.[56]

d. Housing and Community Development Act

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[53] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 128.

[54] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed. Rails-to-Trails Conservancy, Washington D.C. 2001, Page 128.

[55] Commonwealth of Pennsylvania News http://www.mdra.net/documents/Pa-DCNR-Press%20Release03Jul1.htm. Accessed June 9, 2014.

[56] Commonwealth of Pennsylvania News http://www.mdra.net/documents/Pa-DCNR-Press%20Release03Jul1.htm. Accessed June 9, 2014.

Housing and Community Development Act consolidates the categorical grant programs of the U.S. Department of Housing and Urban Development (HUD) – including open space and neighborhood facilities grants – into one total sum that the community can use as it wishes as long as the expenditure falls within the community's plan, as approved by HUD.[57] The Community Development Block Grant Program offers financial grants for neighborhood revitalization especially for low or moderate income areas.[58]

e. Private and Public Sector

Funding from private sector should also be actively sought. The private sector may include corporations and businesses, private foundations or individuals interested in trail conservation. Another source of private support, generally in the form of loans, is available from national nonprofit conservation organizations such as The Nature Conservancy and the Trust for Public Lands.[59] Donations in terms of money and labor by volunteering are another method of raising funds. Individuals and businesses may also set up well planned and organized sponsorship programs to raise funds.

The public sector includes funding from cities, states and local groups. Cities and states may have their own legislation to assist in the acquisition and development of trails and trail facilities. Some states may have a State Trails Coordinator or the

[57] U.S. Department of Housing and Urban Development http://portal.hud.gov/hudportal/HUD?src=/program_offices/comm_planning/communitydevelopment/rulesandregs. Accessed February 4, 2014.
[58] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 129.
[59] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 25.

State bicycle/ pedestrian coordinator, that person may be contacted for more information. Local trail and social groups, religious and other charitable organizations should be approached for financial banking.

f. Land Trusts

A land trust is a non-profit organization. It may be interested in trail building, especially if the trail is located in the area. Since it is involved in negotiating with landowners for the protection and conservation of real estate along with raising funds, the land trust may be helpful when seeking trail advocates.[60]

g. Sales Tax

Sales Tax revenues can be a helpful resource for generating funds. For example, under the Tompkins County Tourism Program's Community Celebrations Grants, visitors pay a hotel room occupancy tax, that is collected by the County government, part of which is reinvested in tourism activities.[61] In Oklahoma City, $0.01 sales tax that lasted five years produced millions of dollars which was then invested into the acquisition and development of trails.[62] Another example is the sales tax levied in Cobb County, Georgia. An amount of $3 million is expected to be

[60] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 131.
[61] Tompkins County. *2020 Tompkins County Strategic Tourism Plan.* http://www.tompkinscountyny.gov/files/tourism/docs/2012-2020_StrategicTourismPlanFINAL.pdf. Accessed February 24, 2014.
[62] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 130.

amassed over four years, which would be used by the Department of Transportation for improving the bicycle transportation.[63]

Trail Cost and Maintenance

The cost of establishing a right-of-way trail will depend on many factors. The trail is used by walkers, joggers, riders, bicyclists, and equestrian. Walkers, joggers and cyclists vary greatly in their preferences for trail surfacing. In order to assure multiple uses, the trail should meet the highest expectations of the various recreationists. For example, a relatively hard and smooth surface is preferable for bicycle use.[64] Uneven ground makes cycling uncomfortable and loose materials such as sand or gravel, are also undesirable. All weather asphalt trails are preferable.[65]

The cost of laying asphalt on an abandoned right of way may be substantially lower because much of the necessary preparation has already been completed by the railroad construction and maintenance crews. The land is already graded. The abandoned rail corridor usually has ballast, as the material would hinder the growth of vegetation and absorb the shock waves when a train passes through.[66] The drainage

[63] Pennsylvania Greenways http://www.ohiorivertrail.org/attachments/097_Pennsylvania%20Greenways%20Local%20Government%20Funding%20Sources.pdf. Accessed June 9, 2014.
[64] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 26.
[65] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 26.
[66] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 66.

ditches are already dug to provide runoff and prevent washouts. In addition, the railroad ballast acts as a base on which the asphalt layer can be laid.[67]

If the width of the abandoned rights of way is sufficient, uses other than cycling may be possible, such as horseback riding.[68] In addition joggers and walkers would require an unobstructed space. If the trail is long enough, picnic and restroom facilities should be provided where the right of way has adequate space.

Maintenance needs to be considered during the design process. Waste containers should be provided at accessible distances. Adequate sight distances and clearance areas must be provided because the trail must have space for motorized vehicular access for sweeping, cleaning, ice and snow removal.[69] If the area is inaccessible to motorized vehicles then trail, cycling clubs or non-profit organizations should be approached to volunteer their services for cleaning the grounds and collecting the trash.

Right of Way Trail Problems

Any trail design and construction will face problems at some point of its implementation. The most common types of problems are associated with the ownership of the trail property and its uses and confrontations with unsympathetic landowners whose property adjoins a trail project as well as objections that may arise before, during and after the trail completion.

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[67] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 67.

[68] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 26.

[69] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 144.

a. Ownership questions

Depending on the nature of ownership of the land, the transfer of the title from the railroad to a public or non-profit trail organization can encounter imposing legal difficulties. The title to a right of way falls into one of two categories: fee simple or easement.

Fee simple ownership is commonly regarded as outright ownership. It means you hold the full title to the property and any rights associated with it. It is the most costly method of acquiring land for trails, but it is highly effective.[70] An easement is far more limited, representing only the right to pass over land and to place certain improvements on the surface in order to facilitate passage. There are different types of easement available. These include the conservation easement, trail easement, and permanent or period-specific trail easement.[71] If the railroad holds only an easement over a parcel of land, fee simple ownership of the land under the right of way continues to be held by the parcel's owner.

The nature of the railroad's title – fee simple or easement – generally depends upon the deed by which the right of way was originally acquired. The party who sold the right of way to the railroad may sometimes place limitations in the deed specifying the uses to which the right of way could be put.[72] This could lead to problems. Sellers are allowed to restrict the purposes and uses of a right of way in order to protect

[70] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 123.
[71] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 122.
[72] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 27.

themselves from other uses that might jeopardize the land they still own, under or adjacent to the right of way.[73]

If a right of way is used for a purpose that violates any limitation in the deed, ownership then reverts back or returns to seller or his heirs. In the case of an easement, there may be a clause that causes the easement to be impractical when it is no longer used for the said purpose.[74] In such cases it may be possible to negotiate an agreement with the holders to sell that parcel of land or change a clause in the easement. If the owner refuses to sell, the State or local government is allowed to exercise its right of eminent domain.[75]

b. Land Acquisition

After identifying the owners of the required land, the next step is to acquire the required portion of the land. There are a number of methods than can be used by the trail advocates, local and state governments and the landowners. The different methods to acquire railroad land for conversion to trails are,

- Grant and Filing Act of Congress March 3, 1875 – Railroad Rights of Way Act

Railroad right of way land goes back to the Federal government or its "successors or assigns of the land" adjoining the railroad right of way, after it's been

[73] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 27.
[74] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 28.
[75] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 28.

abandoned.[76] The Act allowed United States, land to be granted to any railway company measuring 200 feet in width; 100 feet on either side of the railroad centerline.[77] The Act also allows the company to use any of the resources like timber, stone, earth and road from adjacent lands that may be used for the construction of the railroad. The Act required a profile of the railroad and its location to be submitted to the Department of the Interior after every 20 miles of rail track was constructed.

- Right of way by Deed

If the railroad negotiated with the land owners and obtained ownership of the land by paying a fee then a Warranty deed, Grant deed or a Quit Claim deed was used.[78]

- Right of way by Easement

The officials in charge of the trail project negotiated with the landowners and obtained a defined strip of land for an easement. The easement would specify the purpose, for which the land was to be used. The negotiations may or may not include a reversionary clause.[79]

- Right of way by Condemnation

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[76] Atkinson, Herb. *Abandoned Railroad Rights-of-Way = Title Problems.* https://www.irwaonline.org/eweb/upload/web_1286_Abandoned_Railroad.pdf. Accessed February 22, 2014.
[77] Cornell University Law School. Legal Information Institute. *Right of Way through public lands granted to railroads.* http://www.law.cornell.edu/uscode/text/43/934. Accessed February 22, 2014.
[78] Atkinson, Herb. *Abandoned Railroad Rights-of-Way = Title Problems.* https://www.irwaonline.org/eweb/upload/web_1286_Abandoned_Railroad.pdf. Accessed February 22, 2014.
[79] Atkinson, Herb. *Abandoned Railroad Rights-of-Way = Title Problems.* https://www.irwaonline.org/eweb/upload/web_1286_Abandoned_Railroad.pdf. Accessed February 22, 2014.

Condemnation is the process of taking over property or land needed for public use by an authority and to pay 'just compensation', that is whatever the court determines to be a fair price for that particular property.[80] Right of way by condemnation differs according to state law, so each state has its own set of rules and regulations pertaining to it.

- Right of way by Condemnation for an Easement

Condemnation for an easement would include a grant for a specific purpose, but would contain a reversionary clause so that the land would be given to the grantors.[81]

c. Objections From Land Owners

One of the greatest obstacles to trail development is the organized opposition that may arise from people who reside on or own property nearby. For many reasons, these people may be hostile to the proximity of a proposed trail and will try to stop the project.[82] These reasons include the problems associated with providing infrastructure, like sewer lines, the increase in noise pollution, discarded trash and litter, and people continually trespassing in their backyards, weed control, tree pruning, drainage control, loss of privacy, allocation of public parking lots, emergency telephones, access points, rest rooms and drinking fountains at regular intervals.

The best solution is to identify the reasons for the landowners' opposition and try to convince them that their fears are unfounded. In some instances, negative

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[80] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 121.

[81] Atkinson, Herb. *Abandoned Railroad Rights-of-Way = Title Problems.* https://www.irwaonline.org/eweb/upload/web_1286_Abandoned_Railroad.pdf. Accessed February 22, 2014.

[82] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 28.

impact can be avoided when the two parties reach a compromise through negotiations.[83] Landowners also fear change and prefer that any possibility of harm to their interests be avoided. Therefore it is essential that trail advocates organize and bring together all the citizens who are in support of the trail and have a one-on-one conversation with the adjacent landowners. To counter some of the problems of trespassing and loss of privacy, there are various options to screen the house backyards such as fences or also using trees, shrubs and plantings which are less costly and natural. Regular patrolling of the area also helps to alleviate landowner concerns. An example is the Radnor trail, Pennsylvania opened in 2005.[84] There was significant reduction in the crime rates on the trail due to regular patrols and policing. Trails are some of the safest places in the country and landowners preferred to live next to trails rather than abandoned rail tracks or right of way.[85]

Implementation

The design of a rail-trail requires a number of components that are completed in phases. The preliminary design of the rail-trail is drawn out after acquiring the necessary land or railroad right of way. A number of permits and approvals must be obtained to comply with the local, state and federal laws.[86] Environmental checklists, zoning regulations and building regulation forms must be completed before the

[83] United States. *From Rails to Trails. Citizen's Advisory Committee on Environmental Quality.* Washington D.C 1975. Page 28.
[84] Campbell Thomas & Co. Architects. *A Feasibility Study for the Cresheim Trail*. 2008 Page 124.
[85] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 21.
[86] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 123.

construction of the trail. After all the legal permits are obtained the outline of the design can be confirmed.

Corridor Design Outline

a. Corridor or Project name

The trail can be created only after consulting the adjacent landowners and their expectations. The trail generally tends to take on the name of the existing land or pathway. In the case of a rail trail, the corridor is generally named after the rail line that existed or is named based on its location.

b. Purpose and objectives

The purpose of designing and building the trail must be clearly specified by the concerned authorities such as the advocates, non-profit organizations, local groups and interested individuals. The design must also indicate the point of origin and the destination including the communities.

c. Ownership status

The authorities and trail advocates must identify land owners on the trail or adjacent to the trail. The land may be acquired through easement, buying or condemnation.

d. Adjacent landowners

Lines of communication must be kept open between the adjacent landowners, trail advocates and others involved with the trail.[87] Support from the landowners might be increased by organizing tours of the existing nearby multi-use trails that would permit

[87] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania.* United States Department of the Interior, 1995, Page 7.

future trail neighbors to experience firsthand an existing facility. Bringing together the landowners with representatives of national organizations could possibly allay some of the local fears.[88] A tree planting drive along the trail or volunteer activities like preparing the trail surface before construction may be used to encourage the adjacent landowners which would also help to bring the community together.

e. Connections to important locations

The trail must be a viable alternative transportation system hence existing and proposed land uses must be considered. Consider the trail's role in linking residential neighborhoods to other community resources, such as historic centers and sites, national and cultural parks, archaeological sites, other trails, shopping centers, schools, transit stops and offices. The various land use zones must be taken into account.

f. Special considerations

The surrounding topography and structure, historical or modern, must be studied, documented and incorporated into the trail if possible. Wetlands, wildlife, stations, abandoned mines and drainage structures are some features that may be located near the abandoned railroads. Mitigation measures such as shoring up the walls for any negative impacts that may occur during construction must be thought of beforehand.

g. Trail standards

The trail standards would include trail length, width, trail segmentation, access points, clearing, surfacing, trail cross sections, accessible sidewalks, bollards, trailhead, restrooms, maintenance, etc. Some of the design standards used for the

[88] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania.* United States Department of the Interior, 1995, Page 3.

planning purposes are the American Disabilities Act (ADA) and the American Association of State Highway and Transportation Officials (AASHTO) guidelines.[89]

h. New trail features

New features include trailheads, incorporating comfort stations, kiosks, providing adequate parking for motorized and non-motorized vehicles such as bike racks, picnic table and benches, closed-off or open fencing, landscaping and locating trash receptacles where necessary.

i. One-way, two-way or parallel tracks

When deciding the location and length of the trail, the track can be one-way, two-way or there can be parallel tracks. Each track may also be specified for a particular use. The innermost track can be used for walking and intermediate for biking and the outer tracks dedicated to equestrians.

j. Intersections and crossings

Access points of the trail may cut through or begin at busy streets. These points will act as feeder trails to the main trail and hence will need to be properly designated; crossings must have legible and easily understandable signage and good visibility.

k. Signs

The historic and cultural significance of the trail must be made known. Trail users should be provided with an opportunity to learn about their location. Interpretive way-sides and displays are important, including original or replicated mileposts, educational brochures and markers. There are many different types of signs – for

[89] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails*, 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 53.

orientation purposes, informative, regulatory, safety/ warning, hazard and clearance. Designing the trail signs based on the same type of lettering stencils and railroad logos helps preserve and educate the culture of the railway line.[90] It will help maintain visual recognition and continuity across the region.

l. Key interpretation (heritage, natural history, bridges, rails)

The railroad has its own history and heritage. Contact local arts organizations or museums to explore possibilities for incorporating the trail's history and culture.[91] Publish guidebooks and brochures with private or public partnerships to provide detailed information about the trails, the trail network, and the facilities available.

m. Views (local, distant)

The railroad would be located next to watersheds or pass through lands with scenic views. The topography of the area plays a major role and the view of the land can be used in establishing the identity or purpose of the trail. The scenic view shed will emphasize on the importance of open space preservation which can lead to preserving lands through the use of conservation easements.

n. Security/ Privacy

Security is one of the prime concerns of landowners. Trespassing can be controlled by constructing fences or cultivating dense vegetation, conducting trail patrols, managing

[90] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania*. United States Department of the Interior, 1995, Page 8.

[91] United States. & United States. *Heritage trails: Strengthening a Regional Community: Bedford, Blair, Cambria, Fayette, Fulton, Huntingdon, Indiana, Somerset, and Westmoreland counties, Pennsylvania*. United States Department of the Interior, 1995, Page 8.

advocates and staff, local police patrols and volunteers.[92] The security personnel would require non-motorized vehicles during patrols.

Conclusion

There is no easy method for the construction of a rail-trail. It requires the coordinated effort of the legislative and government bodies with the trail advocates and public to start the project and complete the design. The steps involved require a detailed study of the finances and problems that would result from the trail's conception to completion. The financing of the trail can be very burdensome but there are different organizations and initiatives that distribute grants and assistance. The examples discussed in this chapter give an idea of the different kinds of funding assistance available. An understanding of the trail problems caused by the design itself or the people affected by the trail can lead to a purposeful, meaningful and considerate implementation plan. The case study of two trails – South Hill Recreation Way and the Cresheim Trail is used to understand the planning and conservation impacts caused in their respective regions.

[92] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 146.

CHAPTER 5. CASE STUDY OF SOUTH HILL RECREATION WAY, ITHACA, NEW YORK

Introduction

Ithaca has a number of multi use and commuter trails and they lie in abandoned railroad bed areas. These trails can be accessed by foot and provide entry to other trails, state parks and natural preserved areas. Some of the trails are the Cayuga Waterfront trail, East Ithaca Recreation Way, Black Diamond Trail, and the Finger Lakes Trail System. In this chapter, the existing trail's condition has been documented using photographs, comments, interviews, and archival research, as has been discussed in chapter 3. The documentation includes the history of the railway, history of the trail, its inception, construction and completion, the existing condition of the rail bed and any features that can be found on site.

The South Hill Recreation Way (SHRW) is a multi-use trail that was built in 1994 in the Town of Ithaca, Tompkins County, New York. The SHRW begins at Hudson Street and parallels to Coddington Road until it reaches Burns Road. Part of the trail lies within the boundary of City of Ithaca. It was built on the abandoned Cayuga and Susquehanna railroad right-of-way, south-east of Tompkins County in the Six Mile Creek area. The Mulholland Wildflower Preserve is also located very close to the trail. The SHRW was constructed using money from the State Environmental Quality Bond Act, which was granted to the Town of Ithaca in 1986.

The trail way was proposed to be constructed in 1989 but was opposed by the residents of the South Hill district citing safety and security reasons such as strangers

trespassing through their yards. There were also a number of environmental safety issues such as protection of the wildflowers, culverts, streams, grading changes, extension of water-sewer lines along / beneath the railroad bed. Other factors included the protection of the bird population found in the Six Mile Creek area, the protection of tree varieties or shrubs; and soil erosion next to the proposed trail way and beneath the railroad.

The Town of Ithaca filed the application to comply with the State Environmental Quality Review Act (Appendix B) and gained approval on May 11, 1992. The trail was completed and the ribbon cutting took place in 1994.

Figure 1. Photo of the display board at the head of the trail way

Location

The South Hill Recreation Way is located in South Hill, Town of Ithaca – the south-east portion of Tompkins County in the Six Mile Creek region. The following

maps (Figures 2, 3 & 4) were drawn using GIS and shows the current location of the various existing railroads in Tompkins Municipality. The SHRW was part of the existing portion of the Old railroad grade connecting Ithaca and Caroline municipalities.

The 1976 map by David Rossiter of the Tompkins County Railroads shows the location of the Cayuga & Susquehanna Railroad with its switchbacks.

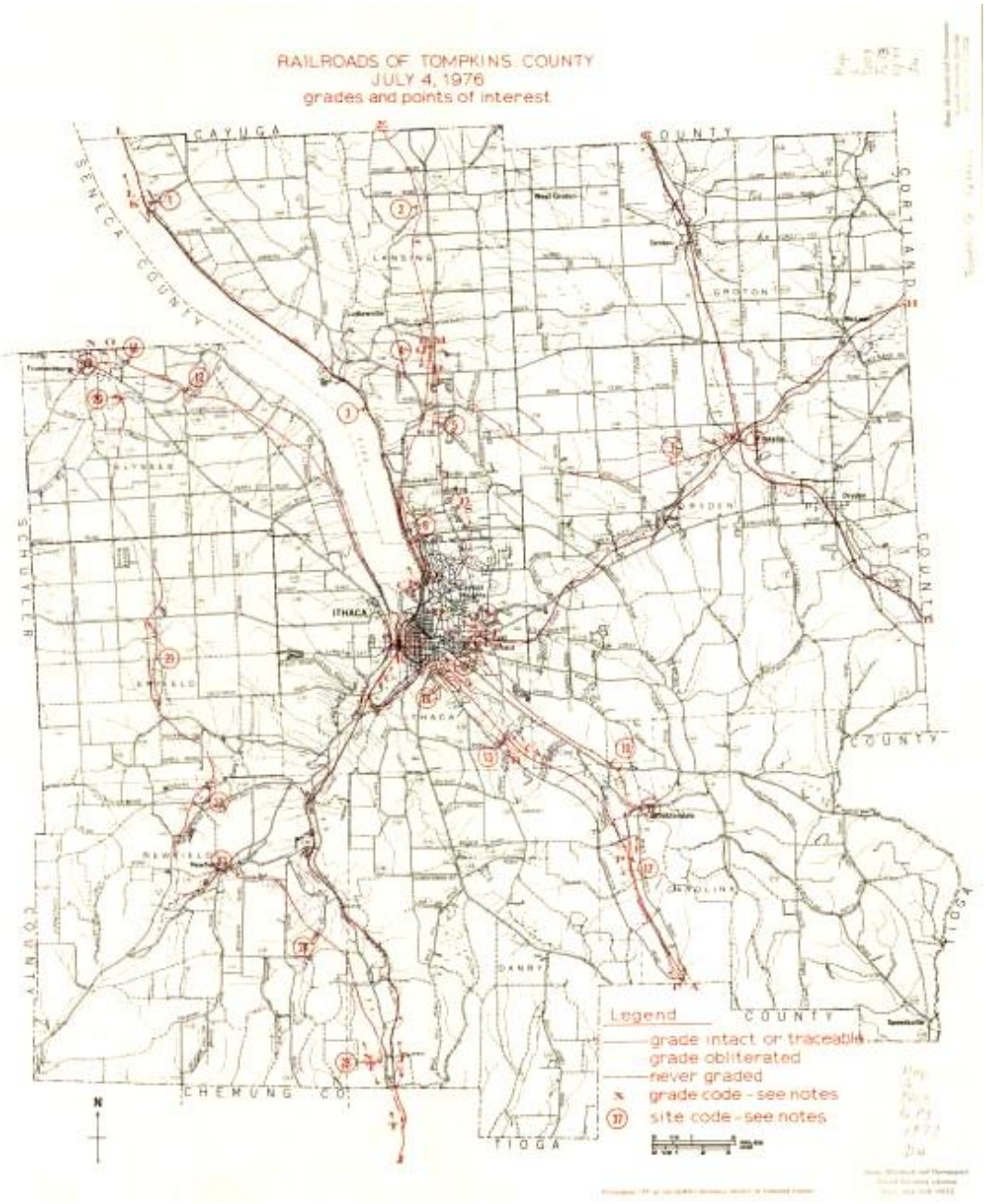

Figure 2. 1976 map by David Rossiter. Source: Olin Library, Cornell University

This map was merged with the existing railroads map to show the exact location of the trail and also to show visually how the trail follows the railroad.

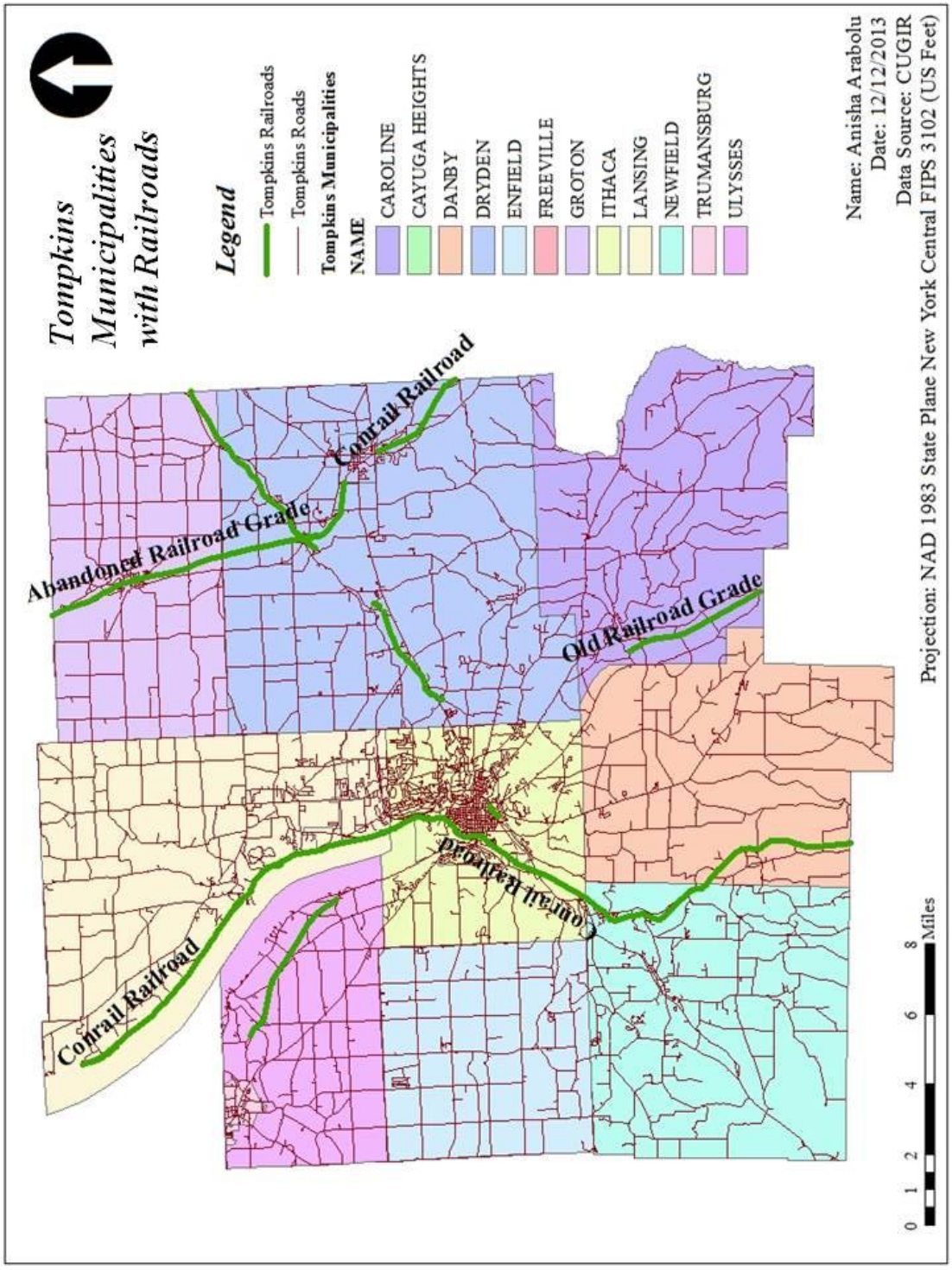

Figure 3. Tompkins Municipalities with railroads

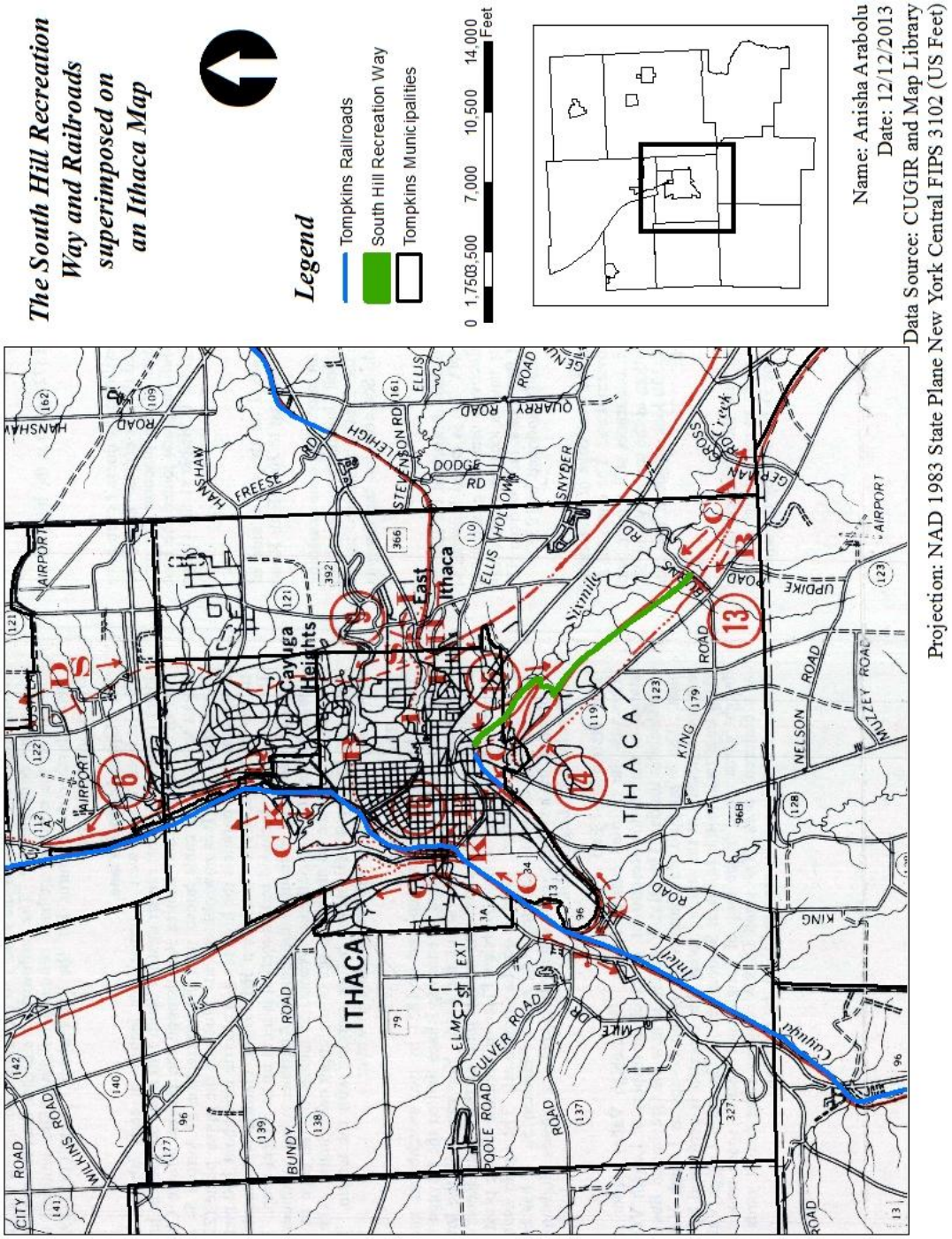

Figure 4. South Hill Recreation Way with the railroads

History of the Railroad

By the early 19th Century the Village of Ithaca was well connected to various places by an efficient road network. Ithaca was connected to the north by the Erie Canal, which passed through Cayuga Lake and Seneca River. Though the village was not completely isolated, and the economic conditions were sufficient, new modes of cheaper and faster transportation were introduced, especially to increase the shipment of coal from Pennsylvania. It was hoped that the canals and railroads would convert the village into a strategic exchange center for coal, salt, plaster, and lumber with cities in Pennsylvania, as well as Detroit, Buffalo, Owego and Baltimore.[93] In order to achieve this, bulk transportation was needed.

Transportation by canal was researched and two routes were determined – by way of the valleys of Six Mile Creek and Catatonk Creek and the other by the Inlet Valley and the village of Spencer. At the same time, the Chemung Canal was being developed, which would have connected the Chemung branch of the Susquehanna River at Elmira with Seneca Lake at Watkins.[94] This project threatened to divert the economy from Ithaca. In order to protect themselves and preserve their trade, businessmen in Ithaca was forced to look at other means to secure the Susquehanna trade, and the only viable option was building a railway.[95]

[93]Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 6.
[94] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 6.
[95] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 7.

The Cayuga & Susquehanna

The Ithaca & Owego Company built the railroad in 1834 connecting Ithaca, New York and Owego, New York.[96] After the depression of 1837, the company failed and residents avoided investing in new ventures. The successor company was granted a charter as the Cayuga & Susquehanna Railroad on April 18, 1843. Casey, the company engineer and a railroad surveyor, investigated two routes: one along the East Hill, and the other on Six Mile Creek.[97] His report was not very encouraging. William R. Humprey, a son of a member of Legislature, sent a letter to his father dated December 23, 1845 wherein he suggested that the Cayuga & Susquehanna could be extended up to Geneva. This project did not gain much support but the next year, the company was able to obtain authority to construct a new track "from any point on the present road within 10 miles of Ithaca" and to increase its capital stock.[98]

The reconstruction of the railroad was made possible by the General Act in 1849. The Act provided funds for railroad companies to relay the flat bar rail to the modern type rail.[99] George W. Scranton, a wealthy financier interested in the Liggett's Gap Railroad in Pennsylvania bought the controlling interests of the railroad. The Liggett's Gap Railroad was later known as the Delaware, Lackawanna & Western Railroad. With the help of William R. Humprey, a son of the member of Legislature, the line was laid in the Six Mile Creek area. The old grade was reached by the use of

[96] Shanske, David. *History of Intercity Rail Transportation in Tompkins County, NY.* Ithaca College
[97] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 14.
[98] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 15.
[99] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 15.

inclined planes. The Ithaca Depot, which was located at the top of the inclined planes, was abandoned during the reconstruction. In order to avoid building bridges across the creek, a reverse switchback in the form of a Z was designed on South Hill.[100] The lower switchback extended from Hudson Street near Hillview Place and the Upper Switchback was located just below Coddington Road, west of Hudson Street.

Figure 5. Coddington Road in the foreground with the upper switchback on the right in 1960. Source: The History Center Archives, Ithaca

This connection allowed for large amounts of coal to be brought into Ithaca. The demand and supply for the coal eventually turned handsome profits for the city.[101] In 1855, a lease in perpetuity was given from the Cayuga & Susquehanna to the Delaware, Lackawanna & Western Railroad. The company operated under its own

[100] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 16.
[101] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and enlarged by Winton Rossiter.* The Dewitt Historical Society of Tompkins County, Ithaca, NY 1977. Page 16.

name and was later known as the Cayuga division of the Delaware, Lackawanna & Western Railroad. By the beginning of the 20th Century, the line had stops at Caroline, Wilseyville, Candor, and Catatonk.

In Tompkins County, the decline of the railroad was confirmed in 1942 [102] when the Delaware, Lackawanna & Western Railroad decided to stop its passenger service between Ithaca and Owego. Following this, the Cayuga & Susquehanna line was abandoned in 1956.[103]

The South Hill Recreation Way Trail

The Delaware, Lackawanna & Western Railroad Company sold the Cayuga branch to Town of Ithaca on April 17, 1958.[104] The Town of Ithaca Planning Department analyzed the deed between Delaware, Lackawanna & Western Railroad and the New York State Electric and Gas Company to understand the extent of the railroad right-of-way land used by New York State Electric & Gas Company. The NYSEG later sold portions of the rail bed to private property owners and companies.

The specific location and length of the trail was chosen to maximize its accessibility to wide range of potential users. Its location also afforded an easy walk from the South Hill Elementary School, the Oak Hill Manor adult care facility and two city bus routes. Parking was available at the Crescent Place entrance to the trail. The

[102] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and expanded by Winton G. Rossiter and John Marcham.* Third edition 2008. The Dewitt Historical Society. An imprint of The History Center in Tompkins County 2008. Page 57.
[103] Lee, Hardy Campbell. *A History of Railroads in Tompkins County. Revised and expanded by Winton G. Rossiter and John Marcham.* Third edition 2008. The Dewitt Historical Society. An imprint of The History Center in Tompkins County 2008. Page 57.
[104] Town of Ithaca Planning Department. *Transfer of Title Deed between Delaware, Lackawanna & Western Railroad Company and the Town of Ithaca*. Accessed December 4, 2013.

planning process was undertaken by Professor George R. Frantz, then a planner with the Town of Ithaca Planning Department.

Funding for the project was sought through various grants, private and public donations. The State Environmental Quality Bond Act in1986 provided the Town of Ithaca $48,763 for the construction of the trail.[105] After getting the funding, The Town began making preparations for the construction of the trail.

Meetings were held to gain feedback and the opinions of the citizens. Most of the residents along the proposed path signed a letter addressed to the Town opposing the construction of the trail. Sixty six residents cited security, potential parking problems, land use restrictions, and safety concerns.[106] In the comments by the residents, however, not everyone was opposed to the idea. A statement by Frank & Louise Mudrak of 693 Coddington Road read, "South Hill trail is a great idea". There were statements made by other residents, "vital importance for linking Cass Park and the State Parks", "trail is an asset to all", "trail should be managed as a natural pathway, not a road" and "Coddington Road totally unsafe for walking due to speeding vehicles".[107]

The design process proposed changes to the signage, which had to conform to the New York State Department of Transportation (NYSDOT) "Manual of Uniform Traffic Control Devices". The proposed design plan included changes to the existing signage at Renzetti Place that included the lettering and signpost. The Mulholland Flower Preserve entrance sign post height was changed to 5'6" and shift 6-7 feet to the

[105] Town of Ithaca Planning Department. Accessed December 4, 2013.
[106] Ithaca Journal. *66 South Hill residents oppose bike-hike trail*. February 14, 1989.
[107] Town of Ithaca Planning Department. Accessed December 4, 2013.

south.[108] Special bike restricted signs and access points had to be developed and incorporated at certain places of the trail, to discourage bikers and hikers from going very close to the gorge or to the stream.

Easements from NYSEG and private individuals were required. Therm Inc. located on Hudson Street had already granted easement rights along its property. Four Town of Ithaca landowners were asked to grant 60 foot wide easements for the trail, but later the Town reduced those specifications to 30 foot grants along certain properties. There were negotiations between NYSEG & residents Jack and Cherie Sincebaugh.[109] Eventually their land was condemned for easement purposes by the Town.

The construction of the Trail began in 1992 and with the help of the Youth Corps[110] it was completed and opened to the public in 1994.[111] Security issues immediately cropped up with vandalism of the bicycle barrier.[112] With increased police patrols in the area, it was much safer. In 2008, the Town of Caroline Board proposed an extension of the trail from Burns Road to Middaugh Road. A feasibility study was conducted by the students of Cornell University Design Connect course for the Friends of the South Hill Recreation Way to study the extension of the trail into Danby and Caroline in 2012.[113]

Design Considerations of the Trail

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[108] Town of Ithaca Planning Department. Accessed December 4, 2013.
[109] Town of Ithaca Planning Department. Accessed December 4, 2013
[110] *Ithaca Journal*, August 4, 1992 "More than a summer job"
[111] Town of Ithaca Planning Department. Accessed December 4, 2013.
[112] Town of Ithaca Press release, July 6, 1994 – *Bicycle barrier on Town of Ithaca's South Hill recreation Way demolished.* Town of Ithaca Planning Department, Accessed December 4, 2013
[113] Design Connect, Cornell University. *South Hill Recreation Way Extension Feasibility Study*. Spring 2012

The design of the trail considers a number of factors that make up the trail such as the physical measurement of the trail, its geographical location, access points, general condition of the rail bed, topography, and different points of special interest, proximity to service facilities, maintenance, management and signage.

The physical measurement of the trail is 3.4 miles in length and approximately 8 feet wide. It forms a Y-shape and has the Ichavelli Park at its junction. The trail adjoins various property lines and sometimes, through easements and negotiations the trail passes through some private property backyards without any encroachments.

Walking the entire trail takes about two hours. There are many private properties adjoining the trail. The major centers close to the trail are the two Universities – Ithaca College and Cornell University and Ithaca Commons/ Downtown. The South Hill Elementary School is also located nearby.

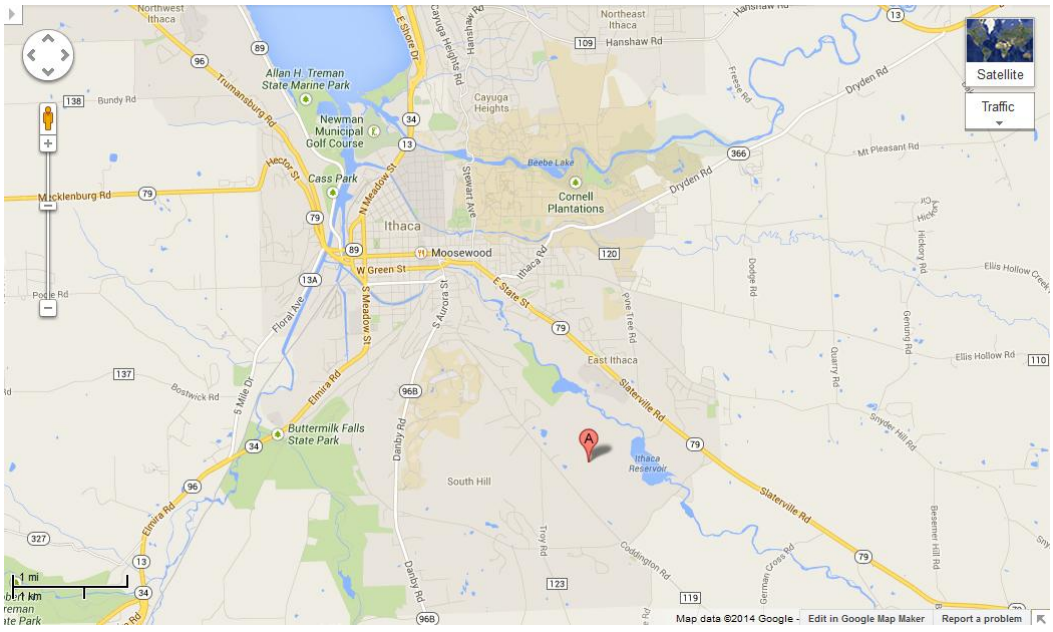

Figure 6. Location of the SHRW, Ithaca ('A' in map).

Source: Google Maps

The Ithaca Zoning map indicates the entire land adjacent to the Trail as Recreational area.

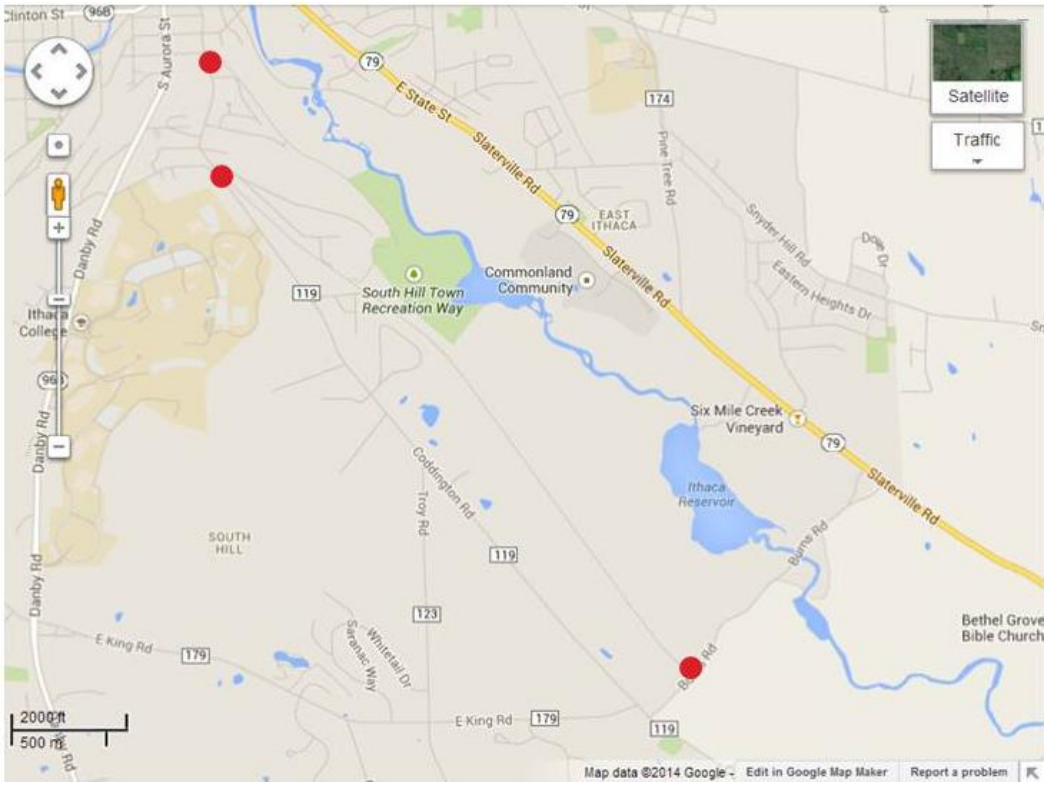

Figure 7. Access points for the Recreation Way

Source: Google Maps

The tracks had been removed prior to the construction of the trail. The ground was surfaced with asphalt for better walking and biking. There are a number of drainage facilities constructed along the trail. The trail has a gradual slope on either side along with small depressions and culverts for collecting run-off water and depositing it in larger streams that empties into the Six Mile Creek. The growth of plants is carefully kept in check so that the weeds do not cover up the trail surface.

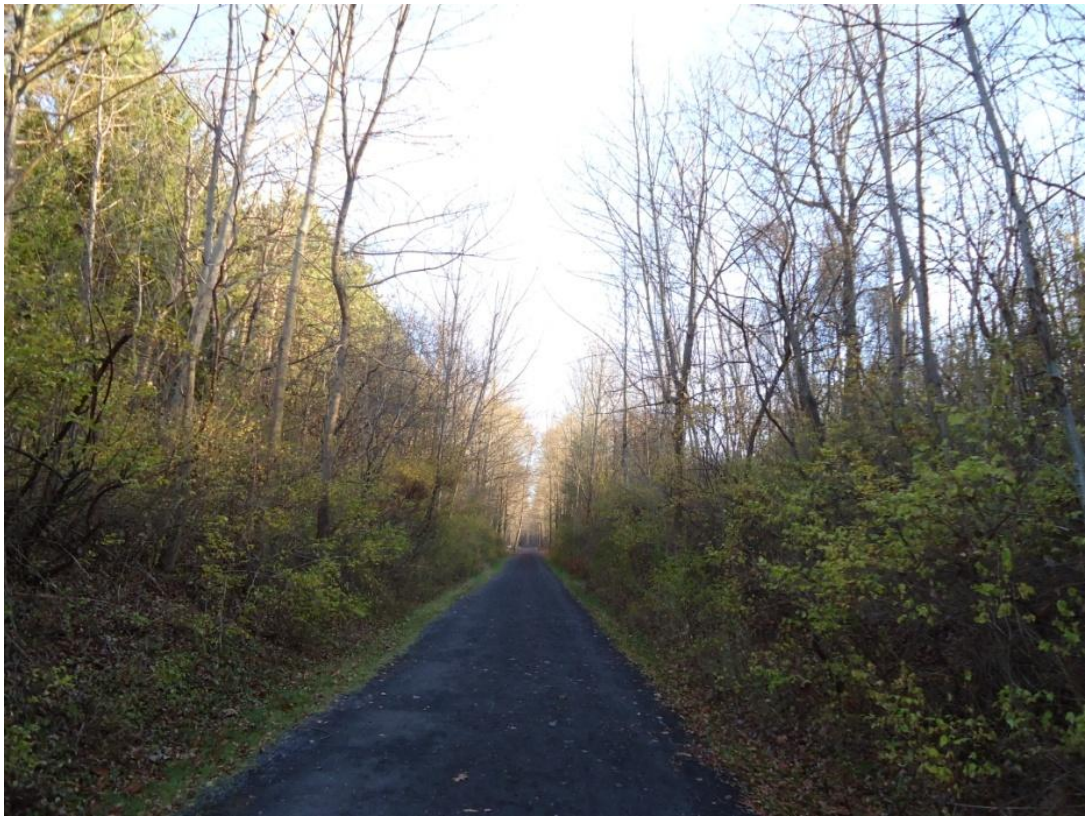

Figure 8. A portion of the trail looking south

The trail is built on higher ground and the stream below is accessible. In order to control the number of people going off track into the stream or other areas inaccessible by bike, a type of obstruction was designed by the Town Planning Department (Figure 9). These obstructions do not completely prohibit people from walking; they restrict only bicyclists. They are located at strategic points all along the trail.

Figure 9. The bicycle restriction device designed by the Town of Ithaca

Some parts of land along the east bank of the right of way close to the Six Mile Creek have been designated as Conservation Easement Property. It means that particular property has to be left as it is, in order to protect and conserve the land, landscape features and other natural resources in its natural state.

Though the land has continuous differing grades, the Trail is mostly flat and has a nearly uniform grade. The lay of the land is such that the trail is above the water level of the gorge. It has a steep slope leading to the water at various sections of the Trail, which passes through land rich in flora and fauna. The land is covered with birch, oak, maple sugar and spruce trees, etc. Deer are a common sight as well as smaller animals like squirrels (Figure 10).

Figure 10. A deer at the South Hill Recreation Way

The trail has been built on the former Cayuga and Susquehanna Railroad right-of-way which has a lot of historic interest and potential. In recognition of this fact, a historical marker has been placed near the Burns Road entrance explaining its importance (Figure 11).

Figure 11. The historical marker near Burns Road

Ithaca has a lot of places having historic importance close to the Trail. These include Cornell University, Ithaca College and various numbers of Gorges and waterfalls and water bodies scattered all over the town such as the Ithaca Falls, Buttermilk Falls, Cayuga Lake, Ithaca Commons/ Downtown, a number of historic districts, important buildings listed in the National Register and museums such as the Herbert F. Johnson Museum of Art and the Museum of the Earth.

The city and town of Ithaca both have a number of hotels, restaurants, parking and overnight lodging that is accessible from the trail for guests and tourists, who may want to visit the trail and the city. The park also has a picnic table with a shelter for family gatherings or an outing.

The maintenance of the trail is very important. This responsibility is undertaken by the Town of Ithaca. Regular maintenance not only helps to keep the trail clean but to also alleviate the adjacent homeowner's concerns regarding trash and littering in the area. Regular maintenance requires the establishment of waste collection areas near roads wide enough to accommodate motorized vehicles for maintenance collection. It must also be taken into consideration that local trail and conservation groups may be willing to volunteer aid in maintaining the facilities.

Figure 12. Maintenance work being done on a culvert

There are various signs located at various places of the trail. Markers that specify distances raveled are located on both sides of the trail to give users a sense of the distance they have already travelled and how much more is left (Figure 13). "Private property, No trespassing" or "Private Driveway, No trespassing" signs are

frequently observed, since the trails runs adjacent to private properties. The east bank of the trail has the "Conservation Easement Property" signs (Figure 14). Interpretational signage is displayed using the display boards at the entrances to the trail (Figure 15). They educate the users about the trail, the many kinds of flora and fauna found and the rules to be followed by the user.

Figure 13. Marker displaying the distance covered at that point of the trail from the entrance.

Figure 14. 'Conservation Easement Property' signs seen along the east bank of the trail

Figure 15. An interpretational sign located at all three entry points to the trail.

Conclusion

Knowing the history and an accurate documentation of the site will help in understanding the advantages that can be gained from the site and also it will help us to be better equipped to conduct further research. For example, the documentation of the existing site will help to give an idea of the trail costs, implementation methods, relevance of the trail and adjacent features to historic sites and maintenance requirements for the proposed extension. The trail is also a prime example for understanding the importance of local support. Hence, it can be seen that there are lessons to be learned from the case study for future use.

CHAPTER 6. CASE STUDY OF THE CRESHEIM VALLEY TRAIL, PHILADELPHIA & MONTGOMERY COUNTIES, PENNSYLVANIA

Introduction

Philadelphia has over 200 miles of existing trails which includes rail-trails, biking trails and hiking trails. Some examples are the Schyulkill River Trail, Wissahickon Creek Trail, Green Ribbon Trail, several other Department of Parks & Recreation Trails and Watershed Trails. These trails connect to other trails thereby linking different counties and making them accessible. The Cresheim Valley Trail is proposed as a multi-use, multi-county trail. It is to be built in the Cresheim Valley of the Wissahickon Creek, a tributary of the Schuylkill River, along an abandoned Pennsylvania Railroad and Reading Railroad right of way. The trail is in two parts: the first part is an existing biking trail in the form of a loop, in an open area adjoining Cresheim Drive and the second part is the proposed extension from the existing loop to be built on the abandoned rail bed. The proposed extension of the trail connects Philadelphia and Montgomery Counties by forming a loop to the Wissahickon Creek with a spur trail to Arcadia University.

The proposed trail was first discussed in 1992. With help from the Friends of the Cresheim Trail, Friends of the Wissahickon, Bicycle Coalition of Greater Philadelphia and other non-profit and volunteer organizations, the proposed extension was finally decided to be built in 2012. The trail has also been discussed in the Philadelphia Pedestrian and Bicycle Plan, April 2012 and the Philadelphia Trail Master Plan, May 2013 draft.

In this chapter, the existing and proposed trail's condition has been documented using photographs, comments, interviews and archival research. The documentation includes the history of the railway, history of the trail, its inception, construction and proposed ideas for the trail extension, the existing condition of the rail bed and any features that can be found on site.

Location

The Cresheim trail is located in the City of Philadelphia and Montgomery County, Philadelphia. The trail begins at Fairmount Park in the Wissahickon Creek, Philadelphia and ends at the Fort Washington Park at Flourtown. It cuts through Springfield Township, Cheltenham Township and Flourtown. The existing trail is 1 mile long and the proposed trail is 8 miles long.

The following GIS maps help to illustrate the trail's location. The first map shows the Montgomery County and Philadelphia City. The second map shows the existing railroads in the area. The third combines the two to show the missing portion of the Reading Railroad where the tracks were removed next to the Holy Sepulchre Cemetery.

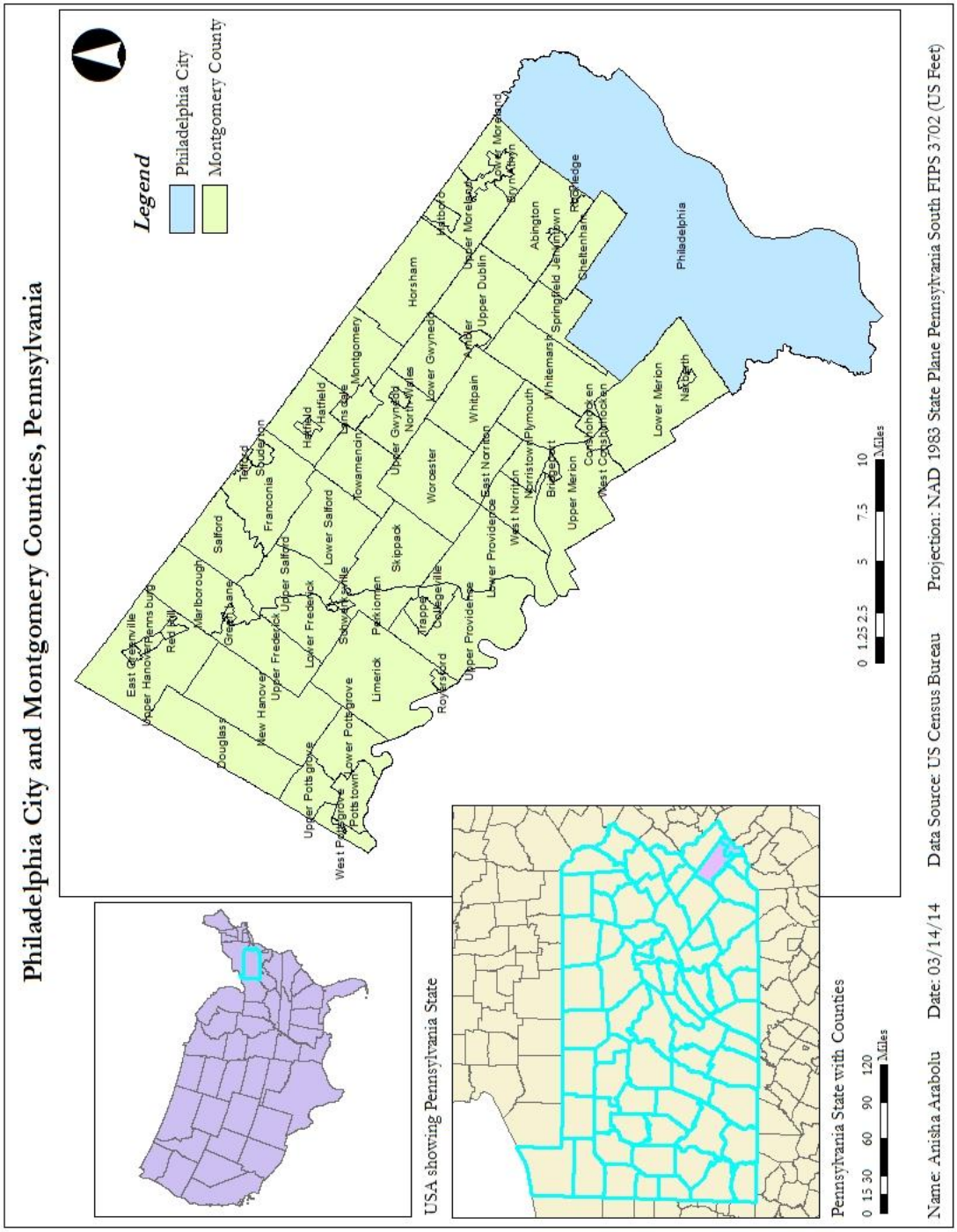

Figure 16. Philadelphia and Montgomery Counties

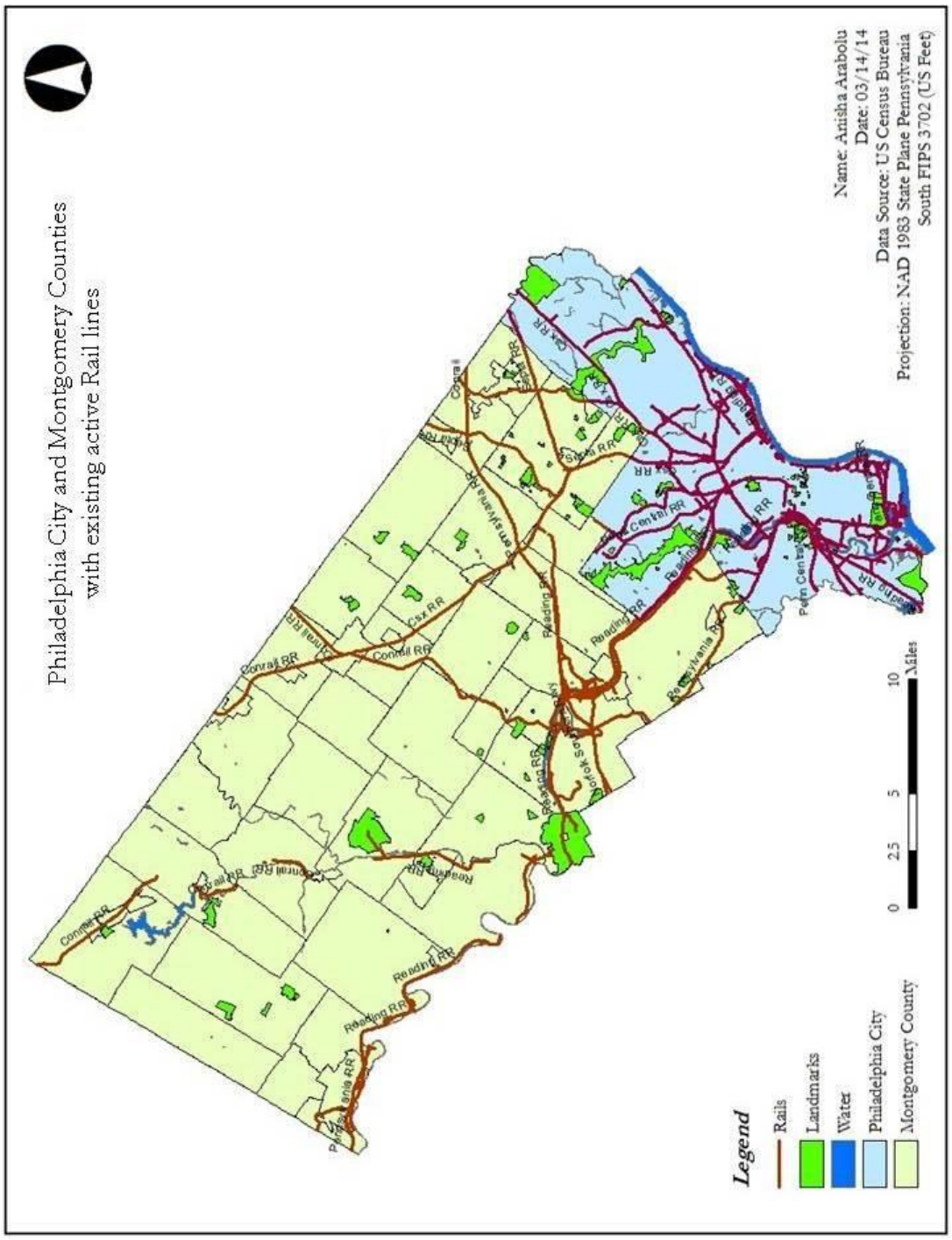

Figure 17. Philadelphia and Montgomery Counties with existing active Railroads

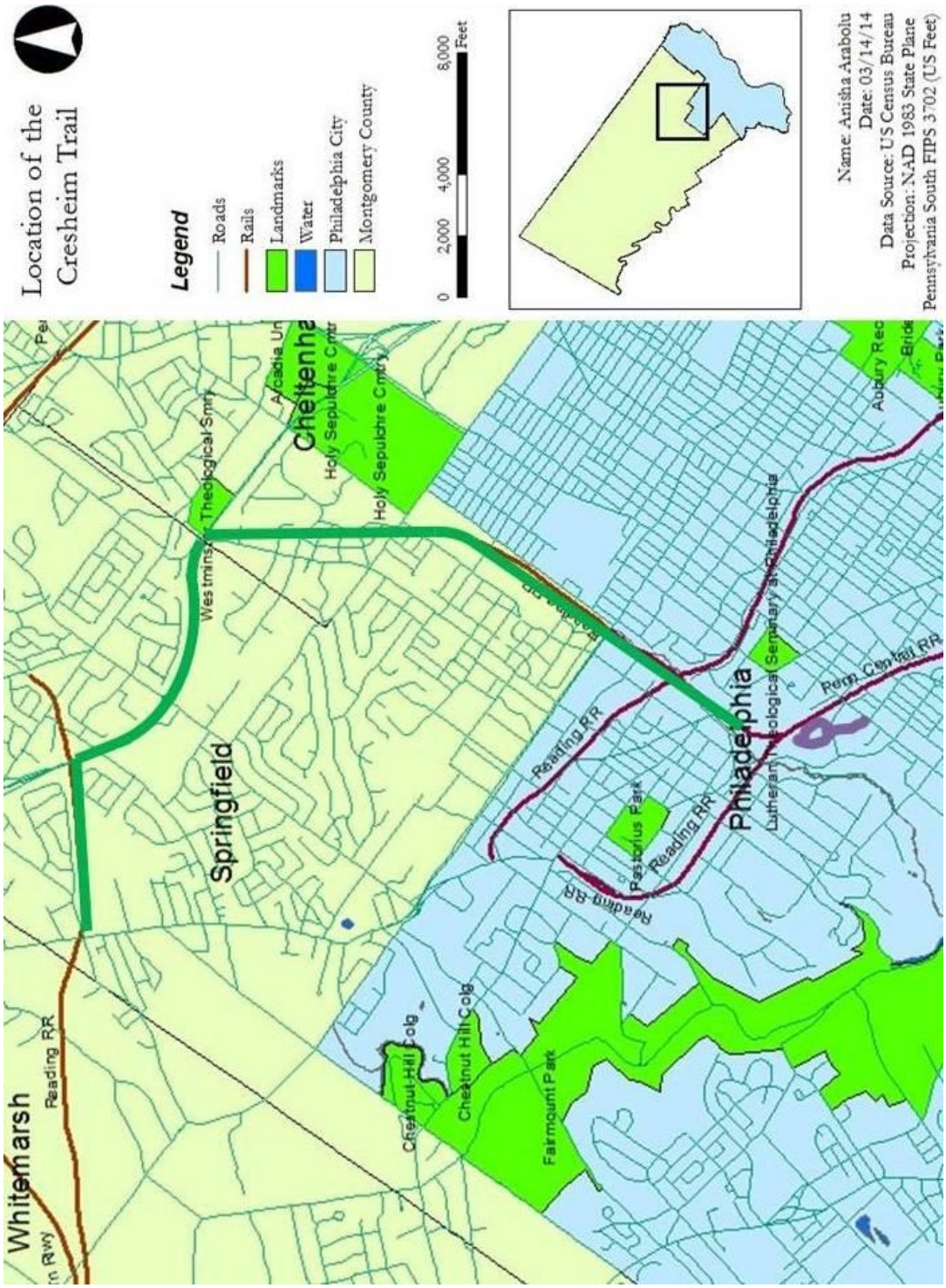

Figure 18. Location of the Cresheim Trail with the existing loop (in purple) and the proposed trail (in green)

History of the Trail

Pennsylvania Railroad

The Pennsylvania Railroad operated in Pennsylvania primarily from Philadelphia to Harrisburg with its headquarters located in Philadelphia. It was then extended westward to include Pittsburg, Pennsylvania.[114] With further connections to the west and north, the railroad connected the eastern cities with others in Ohio, Indiana, Illinois and Michigan[115] (Figure 19). The railroad was primarily used to carry anthracite coal to many cities and markets.

The first charter was granted on March 13, 1823 by the Pennsylvania State Legislature to construct the railroad from Philadelphia to Columbia, Pennsylvania.[116] This same railroad was expected to extend to Pittsburg and then continue into Ohio. In 1825, the opening of the Erie Canal diverted traffic trade to New York from Philadelphia.[117] In order to bring back the trade, an act by the legislature decided that the "Pennsylvania Canal" would be built at Harrisburg in 1826.[118] Although early surveys were conducted and canal transportation was still more favorable than rail, due to the lack of water required for the canal, a railroad line was decided to be built

[114] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 23.
[115] Pennsylvania Railroad. *Guide for the Pennsylvania Railroad with an Extensive Map; Including the entire route with all its windings, objects of interest, and information useful to the traveler*. Philadelphia: T.K. and P.G. Collins, Printers 1855. Page 39.
[116] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 9.
[117] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 10.
[118][118] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 10.

instead.[119]

In 1838, engineer William. E. Morris surveyed the land to construct a direct route through the Alleghany Mountains to Pittsburg. In 1841 Charles L. Schlatter conducted a survey for a railway from Harrisburg to Pittsburg. The first meeting of the concerned backers in Philadelphia was held at the Chinese Museum on 10th December, 1845.[120] On April 13, 1846 the Pennsylvania Railroad Company was incorporated. The Board of Directors included: S. V. Merrick, Thomas P. Cope, Robert Toland, David S. Brown, James Magee, Richard D. Wood, Stephen Colwell, George W. Carpenter, Christian E. Spangler, Thomas T. Lea, William C. Patterson, John A. Wright, and Henry C. Corbit.[121] J. Edgar Thompson was the chief engineer in charge of the line.

In 1848, the Ohio & Pennsylvania Railroad was chartered to build a rail line from Mansfield, Ohio to Pittsburg, Pennsylvania.[122] The Ohio & Indiana Railroad, chartered by the Pennsylvania Railroad was later built in 1854 connecting to Fort Wayne, Indiana.[123] The connection to Chicago, Illinois was completed in 1858 by connecting the cities of Pittsburg, Fort Wayne and Chicago.[124]

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[119] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 10.
[120] Pennsylvania Railroad. *Guide for the Pennsylvania Railroad with an Extensive Map; Including the entire route with all its windings, objects of interest, and information useful to the traveler.* Philadelphia: T.K. and P.G. Collins, Printers 1855. Page 39.
[121] Pennsylvania Railroad. *Guide for the Pennsylvania Railroad with an Extensive Map; Including the entire route with all its windings, objects of interest, and information useful to the traveler*. Philadelphia: T.K. and P.G. Collins, Printers 1855. Page 40.
[122] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 23.
[123] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 23.
[124] Alexander, Edwin P. *The Pennsylvania Railroad – A Pictorial History*. W. W. Norton and Company Inc, New York 1947. Page 24.

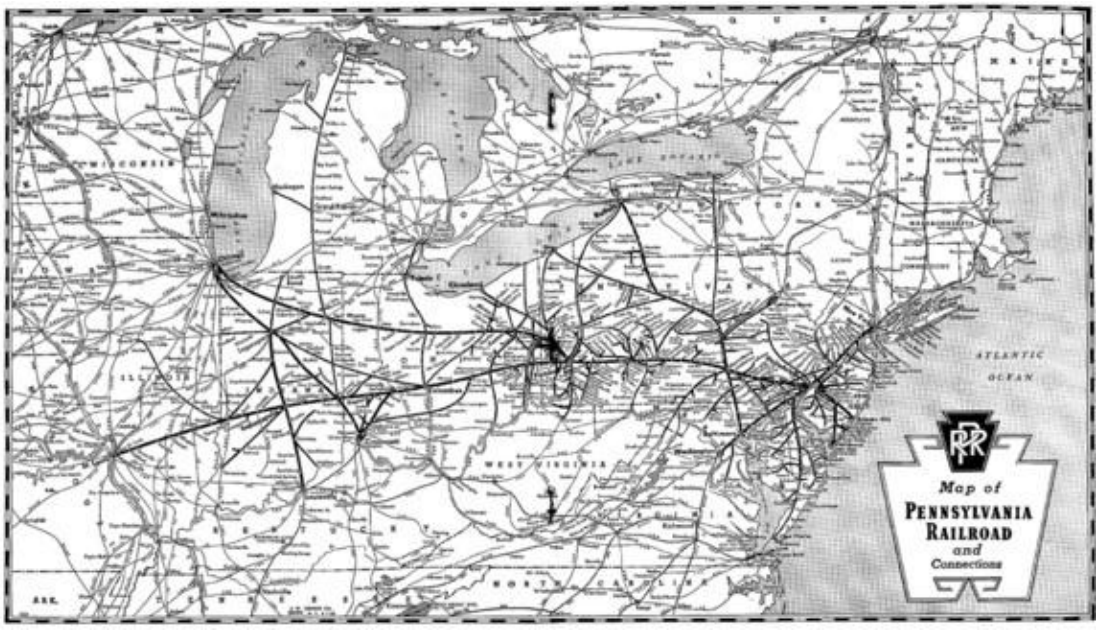

Figure 19. The Pennsylvania Railroad Map 1965

Source: http://www.mappery.com/Pennsylvania-Railroad-System-Map

The Pennsylvania Railroad Company decided to electrify their lines in the 1920s.[125] After World War II and the Great Depression, the Company went bankrupt and a merger with New York Central was completed in 1968 to form the Penn Central System.[126] The company went bankrupt and was sold to Conrail in 1976, later acquired by Norfolk Southern and CSX.[127]

Reading Railroad

The Reading Company was formed by an act of the state legislature on April 4, 1833.[128] It was established as The Philadelphia & Reading Railroad. The charter

[125] Pennsylvania RR Electrification. http://www.northeast.railfan.net/classic/PRRdata9.html. Accessed June 27, 2014.
[126] Pennsylvania Railroad History. http://www.prrho.com/prr.htm. Accessed June 27, 2014.
[127] Pennsylvania Railroad History. http://www.prrho.com/prr.htm. Accessed June 27, 2014.
[128] Fisher, Joseph A., *"The Reading's Heritage" (1833-1958) 125th Anniversary of a Pioneer Railroad*. The Newcomen Society in North America 1958. Page 13.

allowed for a line to be built from Reading, Pennsylvania to Philadelphia, and it would eventually be extended to Pottsville, Pennsylvania, north of Reading.[129] The Pennsylvania Railroad was a major east-west line from Pennsylvania to Illinois whereas the Reading Railroad was a north-south line from Pennsylvania to Delaware (Figure 20). Moncure Robinson, an engineer, supervised the construction of the Philadelphia & Reading Railroad.[130] The Philadelphia Depot was located at Broad and Vine Streets.[131] The railroad was second in the state to use the telegraph for communication through the Philadelphia, Reading & Pottsville Telegraph Company.[132] As the Reading Railroad grew, it absorbed many smaller railroads. For example, the Philadelphia, Germantown & Norristown Railroad became a part of the Reading Railroad.[133] After World War II, the use of coal in engines lessened considerably, dealing a serious blow to the Company which declared bankruptcy in 1971, and its operations were taken over by Conrail in 1976.[134]

[129] Brown, R. W., *The Reading Railroad – an Early History*. The Newcomen Society of England, American Branch New York 1946. Page 26.
[130] Brown, R. W., The *Reading Railroad – an Early History*. The Newcomen Society of England, American Branch New York 1946. Page 24.
[131] Brown, R. W., *The Reading Railroad – an Early History*. The Newcomen Society of England, American Branch New York 1946. Page 27.
[132] Brown, R. W., *The Reading Railroad – an Early History*. The Newcomen Society of England, American Branch New York 1946. Page 25.
[133] Brown, R. W., *The Reading Railroad – an Early History*. The Newcomen Society of England, American Branch New York 1946. Page 27.
[134] Reading Railroad Museum http://www.readingrailroadmuseum.org/reading/rdg_history.shtml .Accessed February 27, 2014.

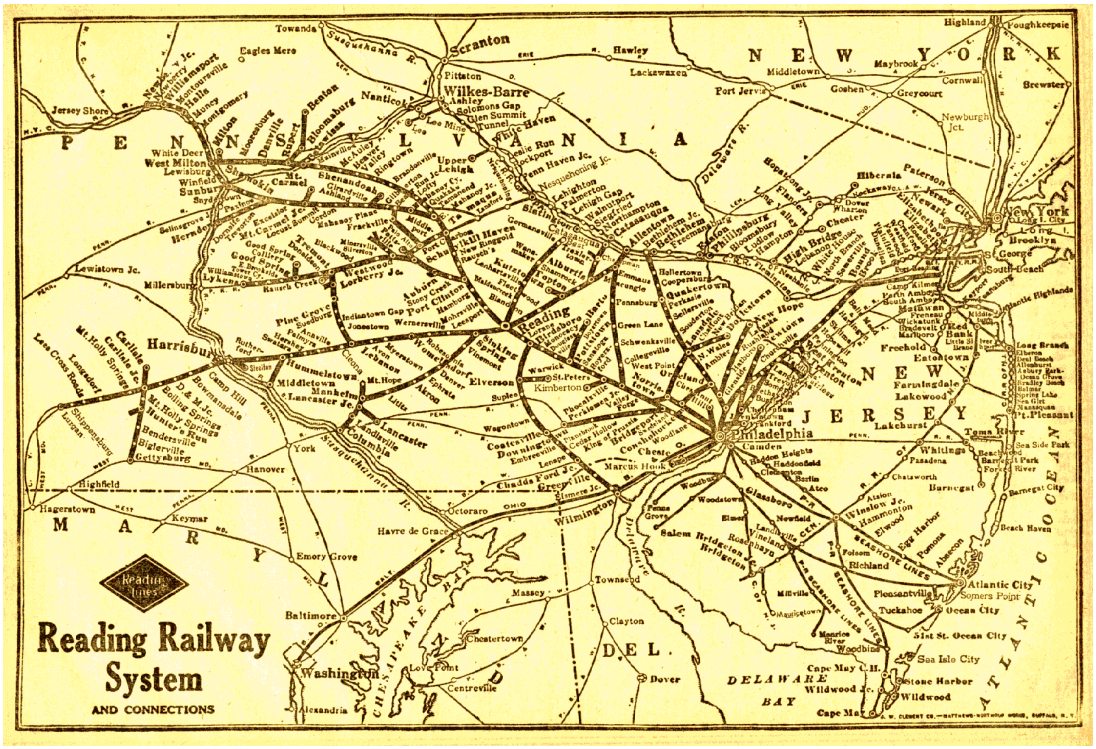

Figure 20. Reading Railroad Map 1956.

Source: http://www.trainweb.org/railpix/map1.html

Cresheim Creek Branch of the Pennsylvania Railroad

The Wissahickon watershed is a tributary of the Schuylkill River located in the southern Montgomery County. In the late 1860s, the Wissahickon Valley had been made a part of Fairmount Park.[135] The Cresheim Valley branches off from the Wissahickon Valley and is located in the neighborhoods of Chestnut Hill West and Mt. Airy. The Cresheim forest extends on both sides of the Cresheim Valley Creek. The forest allows for diverse flora and fauna – deer and numerous birds are seen.[136]

The Wissahickon Creek water was used to supply water to Philadelphia. The

[135] Philadelphia Water Department. http://www.phillywatersheds.org/your_watershed/wissahickon/history. Accessed March 5, 2014.
[136] Examiner.com. http://www.examiner.com/article/the-crush-of-the-cresheim-creek. Accessed March 5, 2014.

water flow powered many mills along the tributary.[137] Hence the Cresheim Valley grew into an industrial area. With urbanization, most of the mills were destroyed, although many ruins are visible. Some of the mills have been reused such as the 1876 Shurs Lane Mills, Manayunk County, Pennsylvania have been converted into apartments.

The Cresheim Valley was chosen as the site for the Cresheim Branch, also called Fort Washington Branch, of the Pennsylvania Railroad. The railroad was constructed to the north of the current Allen Lane Station of the Chestnut Hill West line of SEPTA. The railroad crossed through Hillcrest and Laverock to the present Fort Washington Expressway Route 39 to Fort Hill near Fort Washington area. Over time the commuter traffic reduced dramatically. Pennsylvania Railroad did not maintain the track and it eventually abandoned the line in 1978. The tracks were removed shortly after.

The following series of maps (Figure 21, 22, 23, 24, 25) are used to illustrate the location of the proposed Cresheim Valley rail trail along the abandoned right-of-way's of the Pennsylvania Railroad, Reading Railroad and the Cresheim Branch. The 1950 map of the Philadelphia and Montgomery Counties from Cornell University's Olin Library collection gives a clear idea of where the railroad is located.

[137] Philadelphia Water Department. http://www.phillywatersheds.org/your_watershed/wissahickon/history. Accessed March 5, 2014.

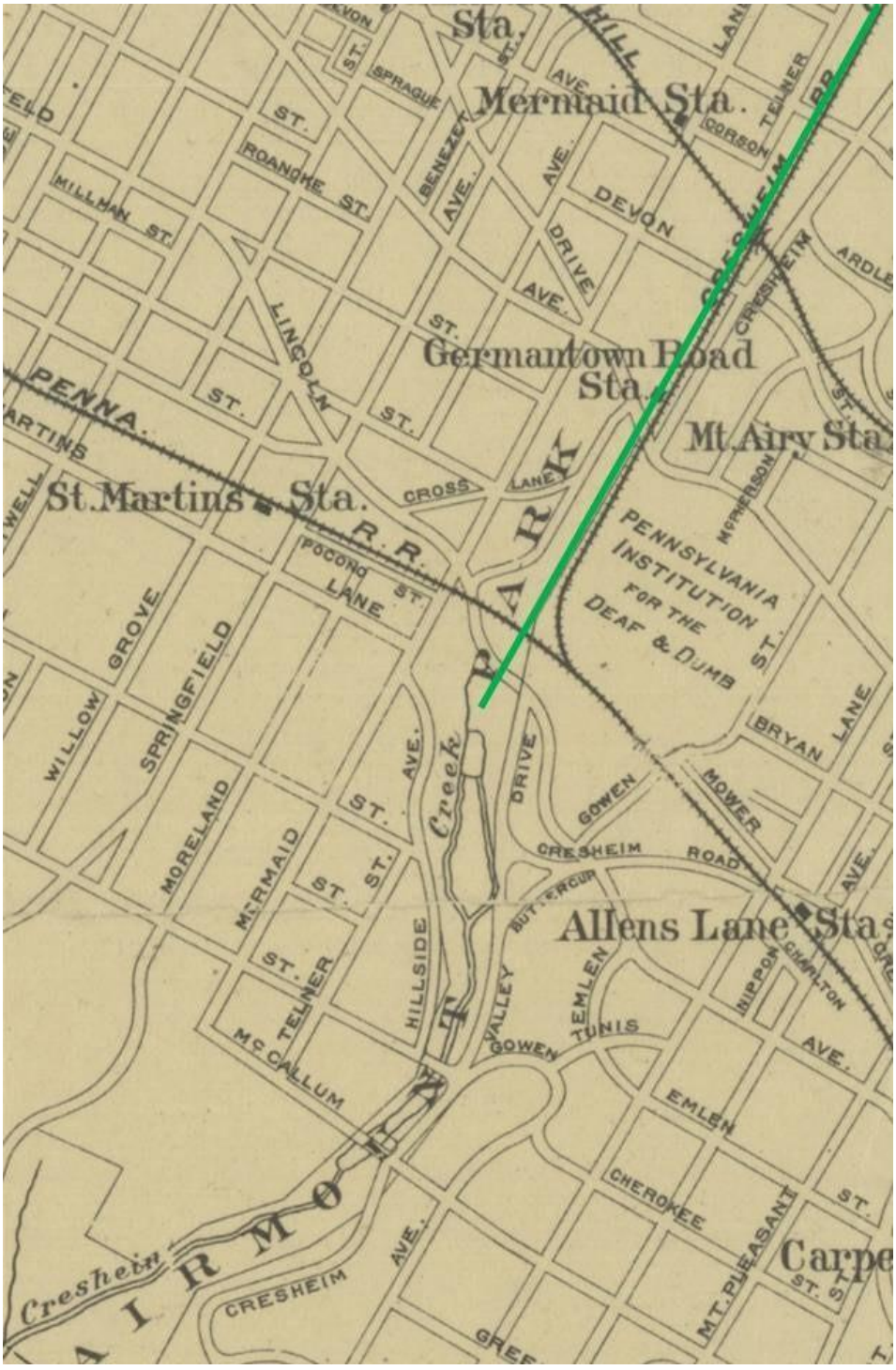

Figure 21. The green line follows the route of the proposed Cresheim Valley rail-trail along the Pennsylvania Railroad superimposed on the 1950 map of Philadelphia and Montgmery Counties. Source: Olin Library, Cornell University

Figure 22. The proposed trail follows the Cresheim Branch shown here.

Source: 1950 map of Philadelphia and Montgmery Counties, Olin Library, Cornell University

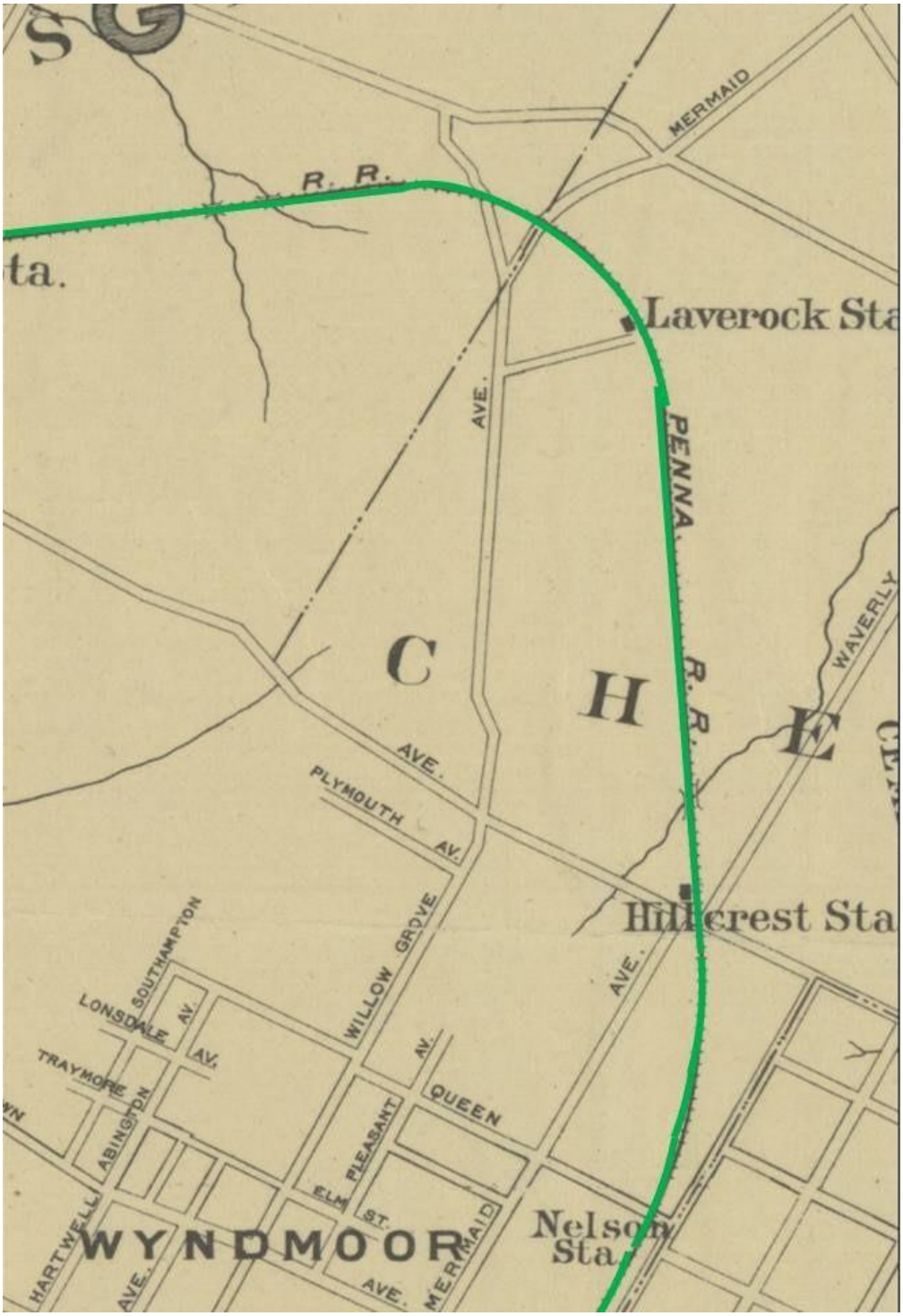

Figure 23. The proposed trail follows Pennsylvania Railroad through Hillcrest and Laverock. Source: 1950 map of Philadelphia and Montgmery Counties, Olin Library, Cornell University

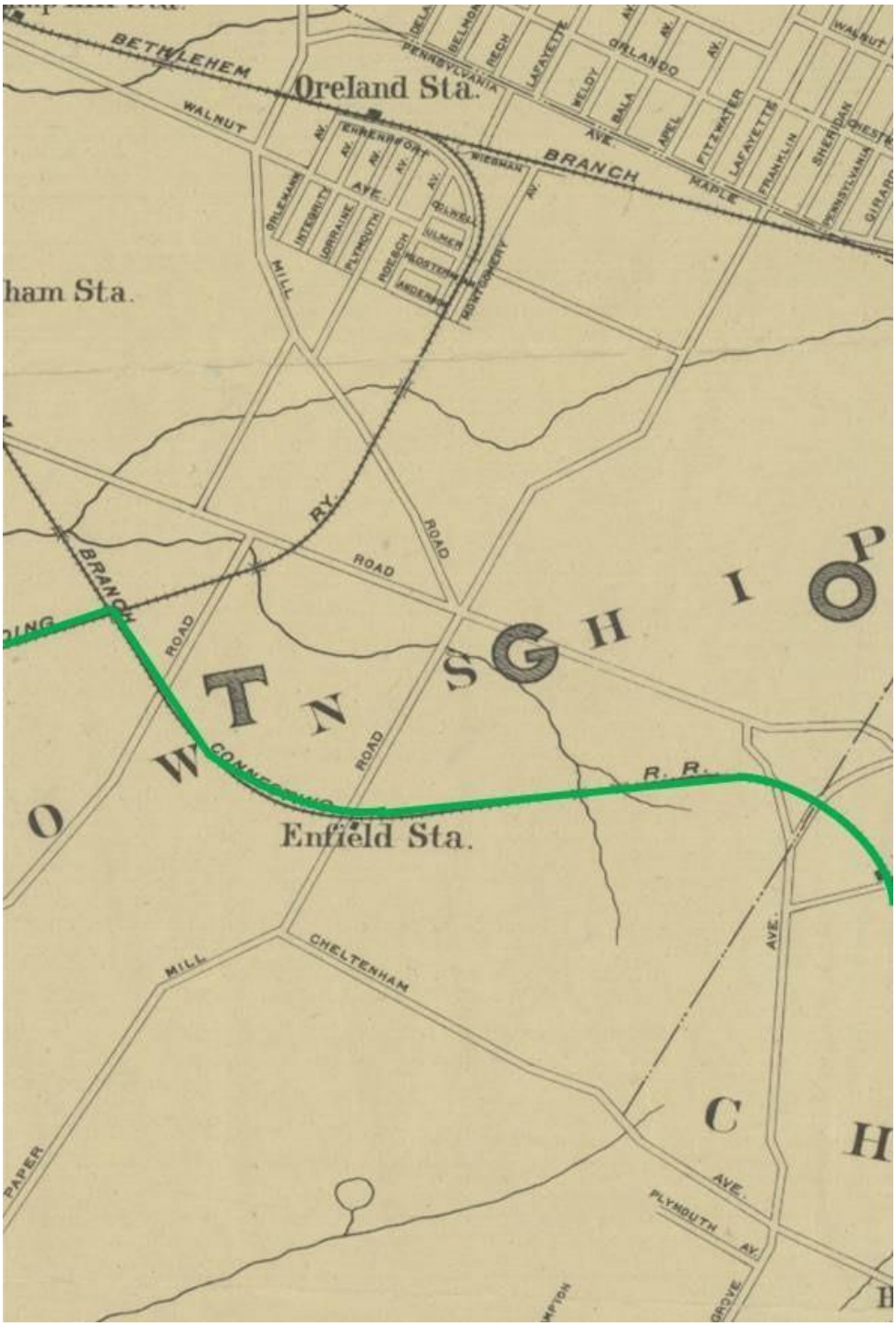

Figure 24. The proposed trail moves north along the Cresheim Branch and then turns west at the junction of Cresheim Branch and Reading Railroad. Source: 1950 map of Philadelphia and Montgmery Counties, Olin Library, Cornell University

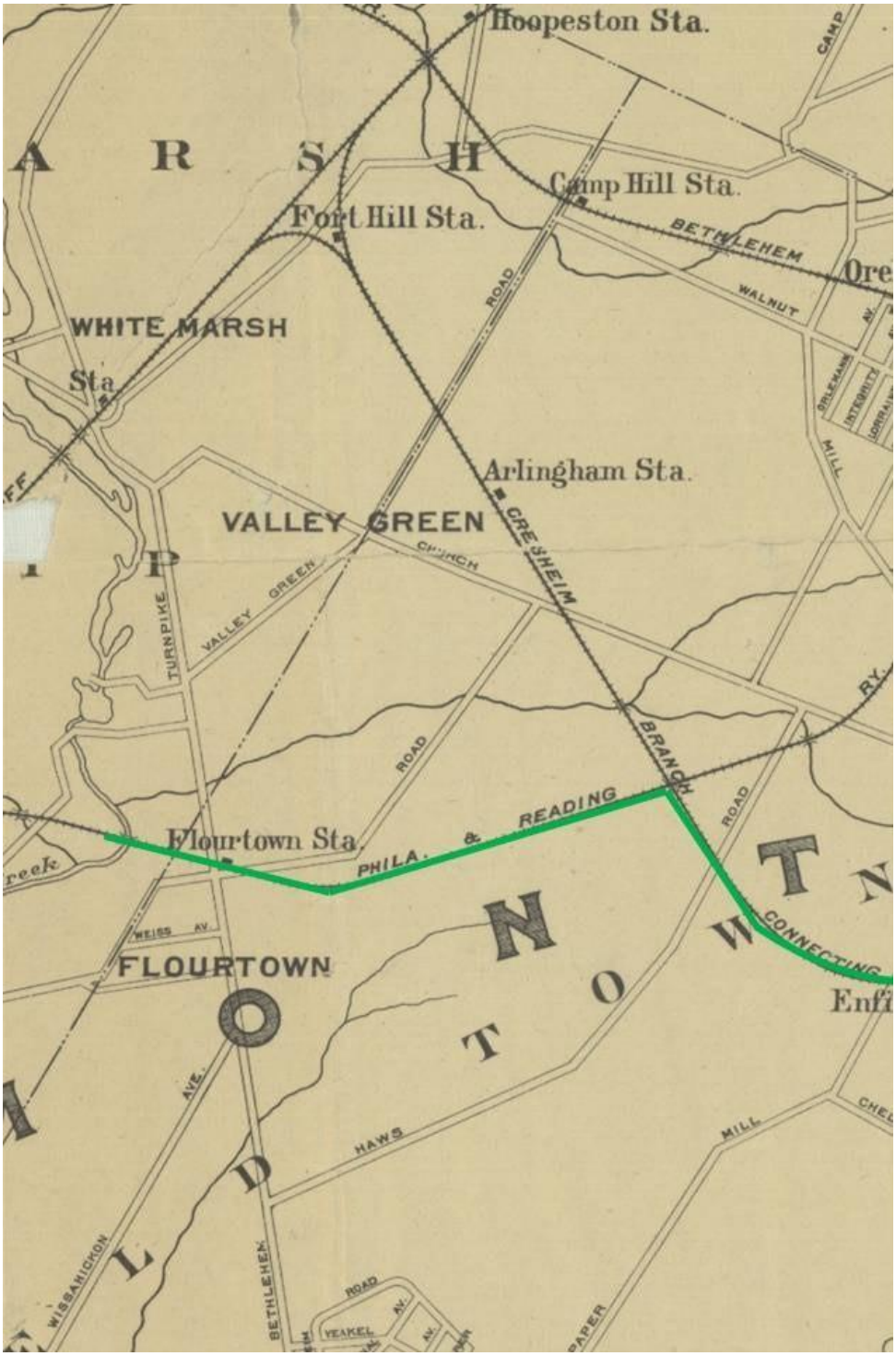

Figure 25. The proposed trail turns at the junction of the Cresheim Branch and the Philadelphia & Reading railroad and moves into Flourtown. Source: 1950 map of Philadelphia and Montgmery Counties, Olin Library, Cornell University

The Cresheim Trail

The Trail proposal was started by the Chestnut Hill Rotary Club in 2004.[138] The trail was proposed to be built on the Pennsylvania Railroad right-of-way, located next to the 100 years old stone pergola at Germantown Avenue. The Pennsylvania Railroad right-of-way was sold to PECO – an Exelon company, to lay the electrical wires. The railroad had an overhead bridge between Mt. Airy and Chestnut Hill that was abandoned and the tracks were removed in 1978.

The stone pergola built in 1909 stands at the Southwest corner of Germantown Avenue and Cresheim Valley Drive. There is a plaque placed in front of the structure, commemorating the early German settlers, Samuel Newman Baxter, the chief arborist of the Fairmount Park in 1915-1945, and the Lenape Indians who lived in the area. The plaque has an inscription that says the land was originally known as Krisheim by the Germans who bought the land from William Penn in 1687.[139] The stone pergolas were restored in 2005 by the Chestnut Hill Rotary Club with the help of Architect Peter DiCarlo.[140] (Figure 26) A new metal plaque was added commemorating the efforts of the Chestnut Hill Rotary Club.

[138] *Chestnut Hill Local*, May 22, 2012 "Creheim Trail project moves forward….slowly"
[139] Philadelphia Public Art. http://www.philart.net/art.php?id=516. Accessed March 2, 2014.
[140] Philly.com. http://articles.philly.com/2013-02-08/news/36974928_1_lincoln-drive-pergola-piers. Accessed March 2, 2014.

Figure 26. The restored Stone Pergola. Source: www.philart.net

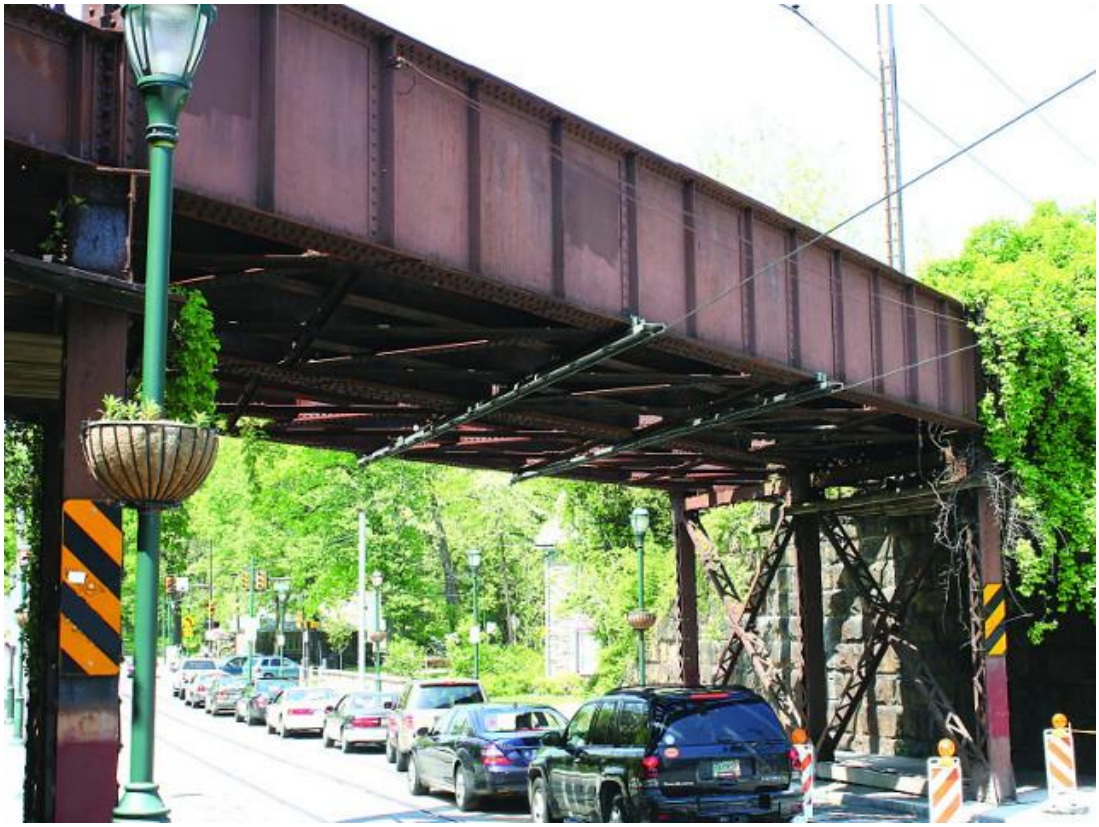

Figure 27. The railroad viaduct at Germantown Avenue. Source : http://chestnuthilllocal.com/blog/2012/05/22/cresheim-trail-project-moves-forward-slowly/

The Mural Arts program is a community murals creation support group that wishes to beautify the area. They wished to create murals on the abandoned railroad bridge. When they contacted PECO, it was known that PECO was not interested in the art work and instead wanted the City to take over the railroad viaduct.[141] (Figure 27)

The city was not interested in taking over the viaduct. Rotary Club expressed

[141] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail, February 17, 2014.

their interest in saving it, but could not take possession due to liability issues.[142] Since the viaduct was a part of the abandoned rail line, Rotary Club decided to incorporate it into the trail. This gave rise to interest in extending the already existing Cresheim trail.

In 2008, Campbell Thomas & Co. Architects were consulted by the Rotary Club to conduct a feasibility study. The total cost of the project study was $40,000. With the Department of Conservation and Natural Resources funding of $20,000 and a matching amount raised through donations and outreach efforts by volunteer and non-profit organizations like the Friends of the Cresheim trail and Friends of the Wissahickon, the study was completed. The feasibility study proposed a construction method for the trail. The trail was to be built in phases having a total of 19 construction sites (Figure 30).[143]

The Friends of the Cresheim trail was established in 2012 to help garner support and organize volunteer and outreach programs. The Friends of the Cresheim trail is a 501 (c)(3) non-profit organization that received its IRS status in 2013. Susan Dennenberg and David Dennenberg formed a board and started applying for grants. David Denneberg is also a member of the Friends of the Wissahickon Creek organization. They set up meetings with the City and the locals in 2012 and 2013 to get the citizens involved in the planning of the trail by learning their opinions. Their experience and invaluable knowledge helped to bring the construction of the trail to fruition.

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[142] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail, February 17, 2014.
[143] Campbell Thomas & Co. Architects. *A Feasibility Study for the Cresheim Trail*. 2008.

Figure 28. The white line is the existing portion of the trail.

Source: www.cresheimtrail.org

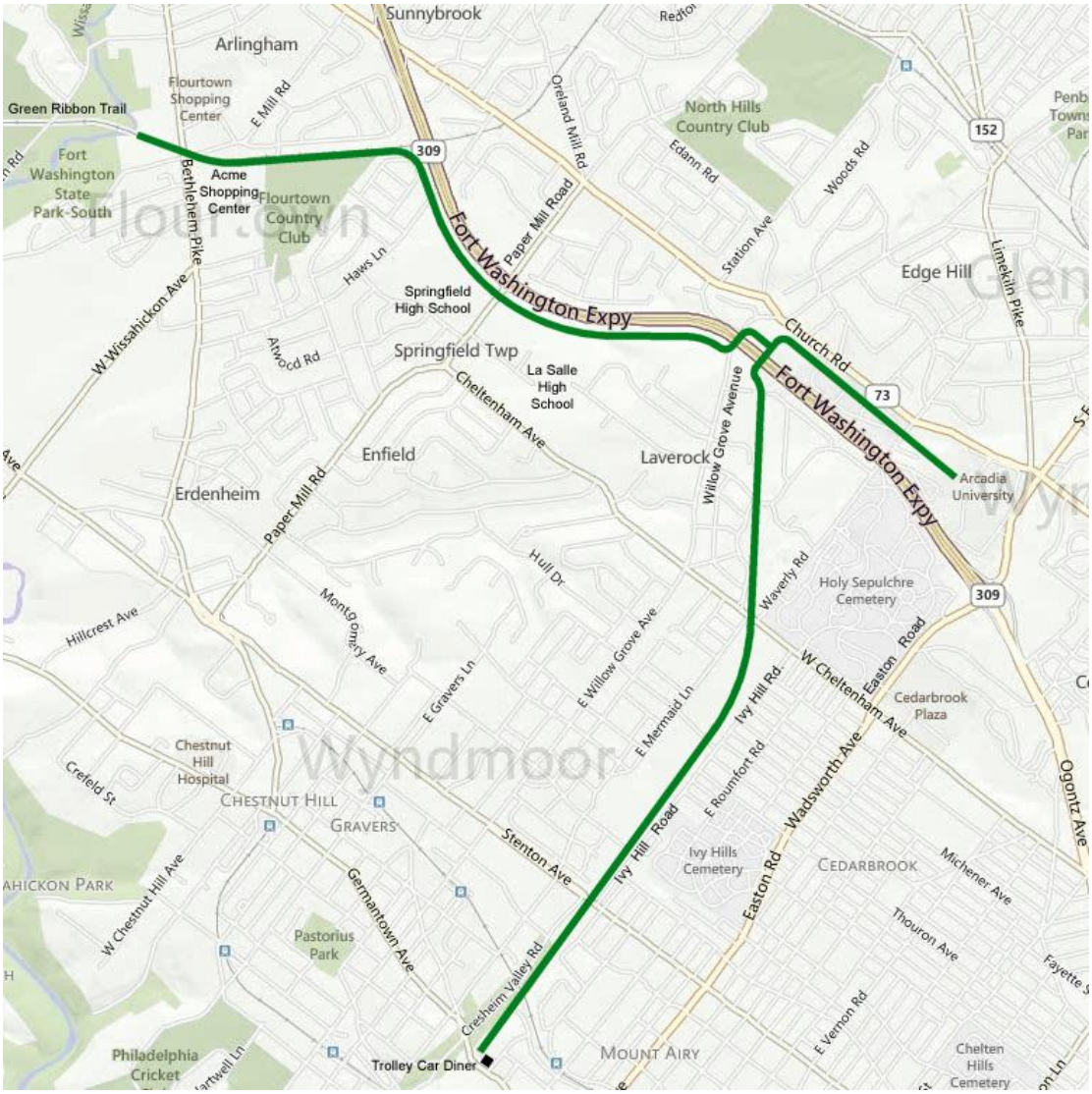

Figure 29. Map of the proposed Trail. Source: www.cresheimtrail.org

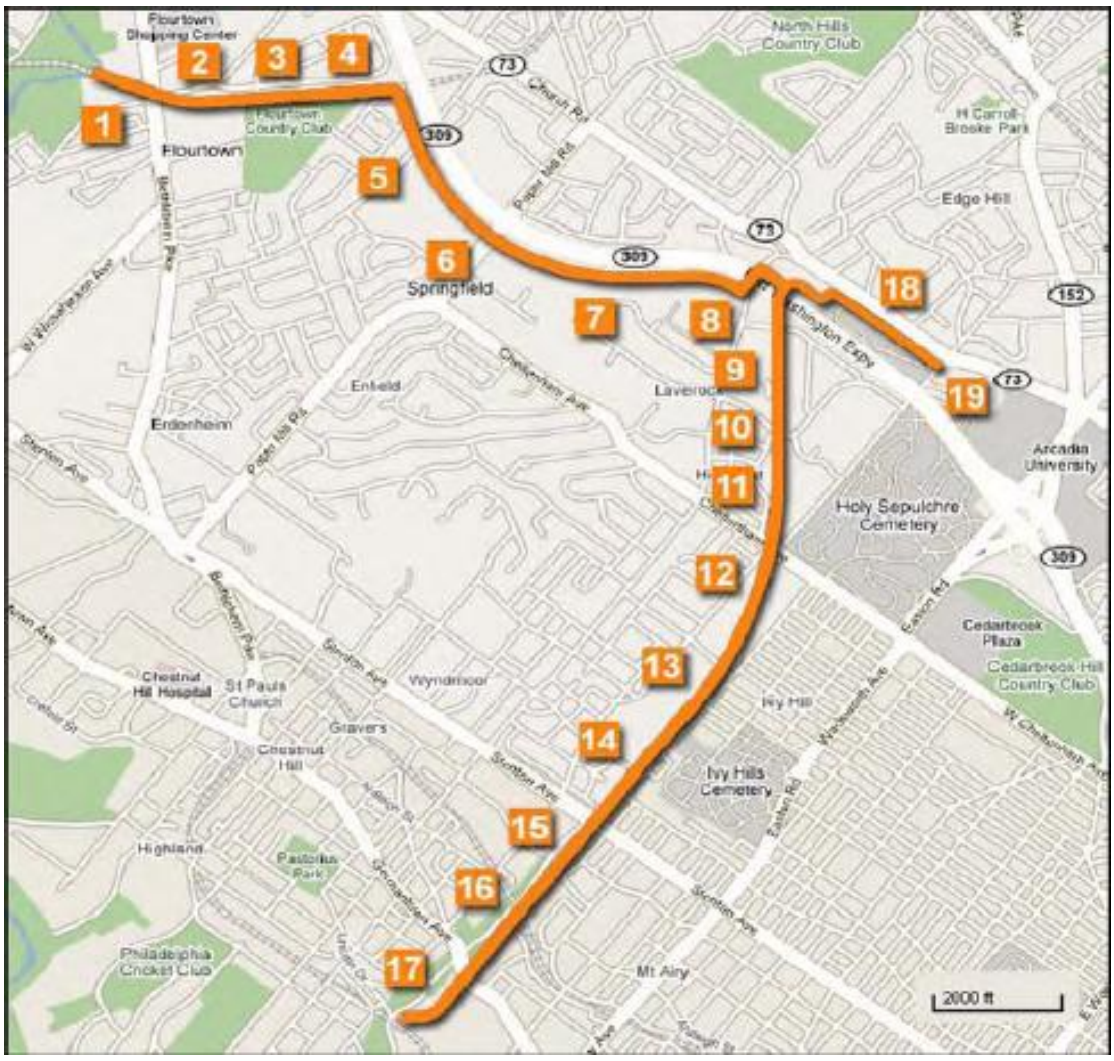

Figure 30. 19 construction sites of the proposed trail.

Source: Feasibility Study by Campbell Thomas & Co. Architects. 2008

Design Considerations of the Existing and Proposed Trail

The design of the trail considers a number of factors such as the physical measurements, its geographical location, access points, general condition of the rail bed, topography, and different points of special interest, proximity to service facilities, maintenance, management, and signage.

The physical measurement of the existing loop of the Trail starting at Lincoln Drive is approximately 1 mile long and the proposed Trail from the Valley Creek to Flourtown is approximately 6 miles long. The width of the railroad right-of-way is about 10 feet, which can accommodate the biking trail.

The proposed trail is located in the Philadelphia and Montgomery Counties. The first two miles of the trail begins at the Cresheim Valley Creek in the Chestnut Hill and Mt. Airy areas in Philadelphia County. The Trail will connect to the Wissahickon Creek on the west and the Green Ribbon Trail on the north. The Trail crosses major roads such as the Germantown Avenue, Stenton Avenue, Route 309 Highway and Bethlehem Pike.

The trail is located very close to the SEPTA R-8 line. The Chestnut Hill West line has a stop at Allen Lane next to Lincoln Drive. The trail passes through various housing and educational facilities. There are a number of schools located very close to the trail including the Springfield High School, LaSalle High School and Arcadia University.

The proposed trail has numerous access points. Some of the points are at Lincoln Drive, Cresheim Road, Stenton Avenue, Mermaid Lane, the Green Ribbon Trail, Germantown Avenue, and Wissahickon Creek. Wissahickon Creek itself has about

50 entry points.[144] The red dots in the figure show some of the access points to the Trail.

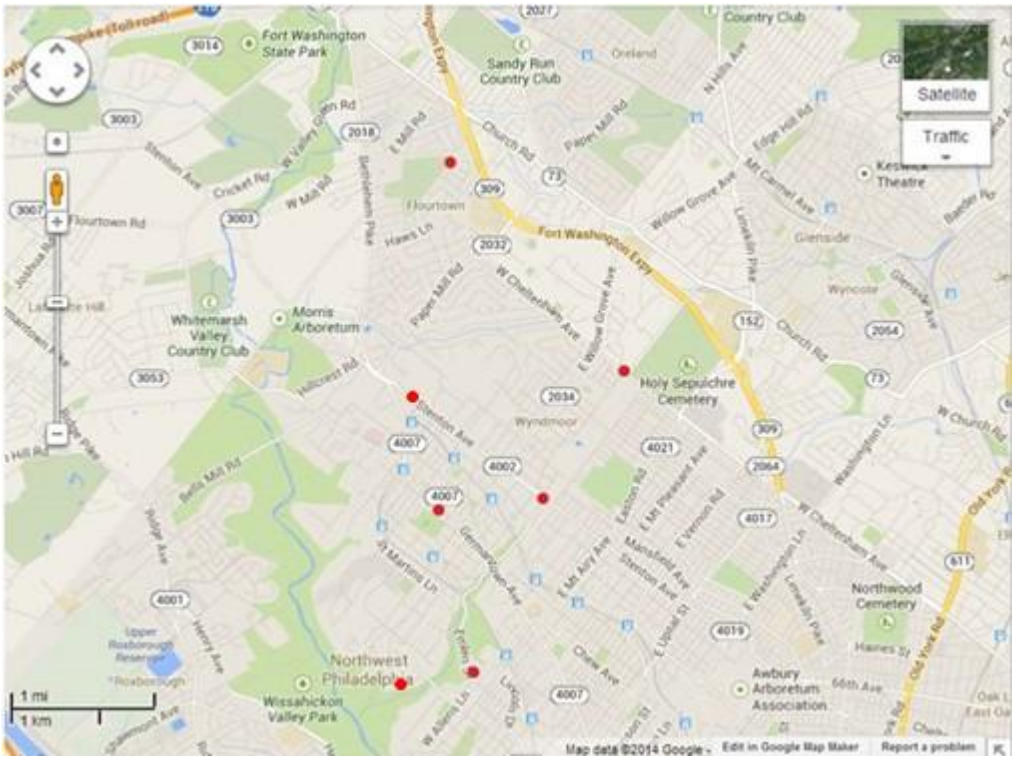

Figure 31. Access points to the trail. Source: Google Maps

The land had been graded because of the railroad tracks. With the abandonment of the railroad, the tracks were removed but the graded land was used for recreational activities like walking and biking. The overhead bridge at Germantown Avenue is structurally sound but requires to be rehabilitated for trail use. The tunnel at Stenton Avenue was closed and will need to be opened for the new proposed trail.[145] This has been discussed in the feasibility study by Campbell Thomas & Co. Architects.

[144] Interview with David Dannenberg, Friends of the Cresheim Trail February 17, 2014.
[145] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail February 17, 2014.

Figure 32. The proposed trail will run between the electrical poles with easements from PECO

PECO an Exelon electrical company owns the railroad right-of-way and has leased some of the area to private companies for parking and storage. Negotiations need to be conducted for making this space available for trail use.[146] Easements would be required from the Westminster Theological Seminary, La Salle College High School and the Springfield School District for the construction of the trail.[147]

The Wissahickon Valley has many streams and creeks flowing into the Schuylkill River. The land has abundant flora and fauna surrounding the streams. This allows for recreational activities such as bird watching, hunting and nature studies. The undulating surface allows for scenic views of the watershed.

[146] Interview with Susan and David Dannenberg, Friends of the Cresheim Trail February 17, 2014.
[147] Campbell Thomas & Co. Architects. *A Feasibility Study for the Cresheim Trail*. 2008

Historical places and events around the Cresheim trail include ruins of various mills along the Wissahickon, significant military action in 1777 including two battles between forces led by George Washington and the British and Germans, mills, Washington's encampment and fortified position at Fort Washington State Park, historic buildings like Valley Green Inn and Grey Towers, native stone quarries, stone pergola at Germantown Avenue, Cresheim Bridge and Cresheim Cottage.

Figure 33. 1876 mill adaptively reused as apartments in Manayunk County, Pennsylvania.

The feasibility study has suggestions for parking and bathroom facilities to be available at Valley Green in Fairmount Park, at Laurel Beech Park in Springfield Township and at Fort Washington State Park. The Valley Green Inn, a historic building also caters to travelers and locals.

Maintenance of the trail will ensure its continued use throughout the year. The

Philadelphia Parks & Recreation generally undertakes the trail maintenance responsibility with the help of non-profit organizations like the Friends of the Wissahickon. The Montgomery County's Department of Parks and Heritage Services is expected to take up the responsibility. Since the western portion of the trail is in Fairmount area, the Fairmount Park Commission will undertake maintenance for that area. The Friends of the Wissahickon, Mount Airy and other volunteer organizations such as the Rotary Club of Chestnut Hill and Philadelphia Parks Alliance would help. It was seen that maintenance has suffered from decreasing funding and staff levels.[148] There are fallen trees and logs blocking the trail (Figure 34). The existing portion of the trail is maintained by the Allen Lane-Lincoln Drive neighbors, WMAN Streetcapes Community, Fairmount Park and the Friends of the Wissahickon. Trail maintenance includes trash collection, repair and repaving when necessary, snow removal and keeping a check on the growth of weeds and trees.

[148] Campbell Thomas & Co. Architects. *A Feasibility Study for the Cresheim Trail*. 2008 , Pg 34.

Figure 34. A portion of the existing trail blocked by a fallen tree at Lincoln Drive.

The existing portion of the trail has only one interpretive sign about the trail at the Lincoln Drive entrance (Figure 35). Appropriate signage would be required at various portions of the trail; these signs would include safety and warning signs for both motorized and non-motorized vehicles, along with street crossing signs when the trail is built near the highway or through the streets of Montgomery County. Interpretational markers about the area and trail's cultural and historical importance is not seen anywhere.

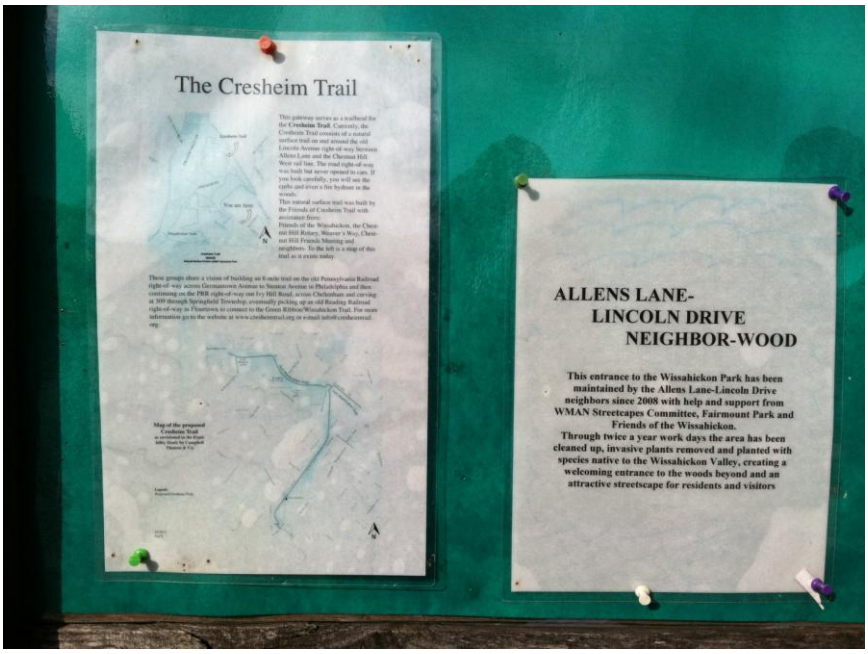

Figure 35. Existing signage at the Cresheim Trail on Lincoln Drive

Conclusion

The proposed Cresheim Trail will connect the different communities and townships, effectively acting as an informal transportation route. Its location and proposed ideas for extension will bring together the Philadelphia and Montgomery Counties, preserving the land, rail bed and watershed areas. The accurate documentation considers the future needs which will later help in funding and implementation methods. The rail bed has a rich history that needs to be interpreted for the users. The construction and implementation of the trail may take a decade for completion but the detailed study may lessen the time required by utilizing adequate preservation and planning measures.

CHAPTER 7. COMPARISON AND RECOMMENDATIONS

Introduction

The documentation of each of the trails was based on their respective histories, design factors and their interpretation to their users. In this chapter, both trails are compared to each other to identify what lessons can be learned from the completed trail, to be used, in the proposed one. Then, several proposed ideas are explored that could enhance the trails.

A Comparison of the Two Trails

	South Hill Recreation Way, NY	Cresheim Trail, PA
Design stage	Completed	Proposed
Description		
- Length	3.3 miles in Y-shape	1 mile of existing loop and 8 miles of proposed trail
- Width	Approximately 10 feet	Approximately 8 feet
- Surface	Asphalt	No proper ground cover
- Surrounding Landscape	Six Mile Creek watershed , undeveloped forestland protected by Conservation easements and private properties	Close to the Wissahickon Creek, small towns and runs parallel to Route 309 Highway and other roads

Trail uses	Biking, walking, jogging, hiking, no motorized vehicles	Biking, walking, jogging, hiking, no motorized vehicles
General condition	Generally in good condition. The trail surface is asphalt which is ideal for walking and biking. Good drainage system helps to keep the trail in use.	The existing portion is not in good condition. The surface is plain earth that's been packed into a flat surface. Both the existing and proposed trail areas will require extensive maintenance (removal of vegetation, weed control, removal of top surface, laying any drainage utilities and laying of the gravel and asphalt cover) to convert the area to asphalt surface which is appropriate for biking.
Trail benefits	Health and fitness Preserving open space Recreational opportunities	Health and fitness Preserving open space Recreational opportunities

	No motorized vehicles Aesthetic beauty Brings the community together Good maintenance Natural surroundings	No motorized vehicles Aesthetic beauty Brings the community together Natural surroundings
Historic value	The trail only has one marker that educates the user about the trail being built on a railbed.	The trail has good potential for educating the users about its origin as a railroad and the structures associated with it. There used to be station houses (Germantown Road, Ivy Hill, Nelson, Hillcrest, Laverock, Enfield and Flourtown Stations) along the railroad. Except for the Germantown Road Station, later renamed as the Germantown Avenue Railroad station, every other station is no longer in

		existence. A marker educating the trail users about the stations needs to be placed. The Germantown Avenue Railroad Station was later converted into a residence but is locally significant to the former railroad. The trail lies in Chestnut Hill Historic District
Cultural features	The trail is close to Ithaca Downtown/ Commons and the South Hill historic district. Educational institutions (universities and schools) are situated very close. Activities like marathons can take place bringing the community together. The Six Mile Creek watershed, gorges	The stone pergola and the railroad bridge are the main cultural features of the trail. There are a number of educational institutions mainly schools and the Arcadia University and other institutions such as the Episcopal church and cemetery are close by. The Wissahickon

	and the Mulholland Wildflower Preserve are important protected cultural areas.	watershed and the township's community centers are also easily accessible.
Conservation practices	Zoning uses clearly indicate the area is to be used as a recreation space. This helps as part of the Open Space Preservation strategy. Conservation easements enhance the aesthetic beauty of the space.	The restoration of the Stone pergola at Fairmount Drive and the restoration and reuse of the railroad bridge at Germantown Avenue are the main preservation projects for the Cresheim Trail. Easements on the rail bed would also help to protect the land and preserve the open space.
Interpretative Strategies	Historical Marker and trailheads are used to convey visual interpretation. Brochures that speak of the landscape, surrounding	The current trail interpretation is through a simple sheet of paper that that shows the existing loop and has very little information regarding its

	flora and fauna were created by the Town of Ithaca, but they are not in use anymore. There is potential to create more educational and interpretive signage. For example, markers that speak about the railroad history and its connection to Ithaca can be placed at strategic points and the brochures may be reprinted and distributed.	history and is not very educative about the surrounding flora and fauna. More signs talking about the trail history can be made and placed at strategic points. For example, a trailhead may be placed at the junction of Lincoln Drive and Allen Lane educating the users of how Lincoln Drive was supposed to be built through Cresheim Park but the idea was abandoned and the lane is broken in between.
Relationship with other trails	The trail is located conveniently and can easily be connected to the East Hill Recreation Way, Cayuga Waterfront trail	The trail is designed so that it can form a loop with the Wissahickon trail and Forbidden Drive. The trail passes through 4

	and the Black Diamond trail thereby connecting other communities	townships and hence can connect to other smaller trails that run within the city limits of these townships.
Tourism	The occupancy tax by Tompkins County Tourism Program is reused for community enhancement. This practice virtually puts the money back into preserving and protecting the land for tourism purposes.	The trail will connect the two counties – Philadelphia and Montgomery. The trail will help visitors moving between the two counties. There is no occupancy tax strategy like in New York and a similar one may be created in the future.
Exhibits	More signage can be placed along the trail	Signage exhibits will need to be designed and placed throughout the trail.
Management	The Town of Ithaca and the Friends of the South Hill Recreation Way make certain that the trail is	A number of organizations, both state and local levels (Philadelphia and Montgomery counties) are

	maintained and improved constantly for better use.	being gathered together to help maintain the trail for regular use.

The comparison of the trails is useful for understanding the practices already in place for the South Hill Recreation Way Trail. The practice of open space preservation and the use of conservation easements help to protect and preserve the watershed. This practice can be used to protect the Wissahickon watershed in Philadelphia and Montgomery counties. By connecting the South Hill Recreation Way to other surrounding trails, it increases the connectivity between the surrounding communities to Ithaca, as well as, connecting the historic districts within them. The same method of connecting the communities is applied to the Cresheim Trail.

Recommendations

The comparative analysis is based on factors such as uses of the trail, its condition, historic values, preservation strategies, tourism, and interpretive strategies. The South Hill Recreation Way Trail is mainly used for walking, jogging and biking. The trail could also be used for conducting races or marathons during festivals such as the Ithaca Festival or by nearby schools for an outdoor educational trip. There is no equestrian path currently but expanding the trail width at certain portions, adding an equestrian path may be possible. The trail can also be enhanced by extending and connecting it to other communities. There are efforts to extend the trail to Caroline.[149]

[149] Design Connect, Cornell University. *South Hill Recreation Way Extension Feasibility Study*. Spring 2012.

It would require local and state support. The existing portion of the Cresheim trail is currently used for walking, jogging and biking. There is no equestrian path. The nearby Green Ribbon Trail is an equestrian trail. The proposed portion may be modified to add an equestrian path, connecting the Green Ribbon Trail. Similar to the South Hill Recreation Way trail, races and short marathons may be possible.

The existing portion of the Cresheim Trail's condition is not good. There is no regular maintenance on the trail. The rotten leaves and wet earth make the path very slippery. Having regular clean-ups by volunteers would greatly help in creating a cleaner and safer path.

In regards to tourism, the hotel occupancy tax strategy helps Tompkins County greatly. If a similar strategy could be put into practice for the Cresheim trail, it would certainly help the surrounding historic sites such as the Village Green Inn hotel. The trail users could also use the trail as a transport route to visit the Grey Towers and other historic sites nearby. Increasing the online visibility of both trails through websites like trailink.com would also act as a significant factor for economic development and tourism. A tourism strategy is good marketability of the trail. Various marketing tools include posters, bumper stickers, flyers, local trail maps, brochures at local community centers, visitor centers, nearby hotels, restaurants and other commercial establishments.[150]

Comparing the local support strategies of both trails, the Friends of the Cresheim Trail are doing an excellent job of organizing volunteers for regular clean

[150] Flink, Charles A.,Olka, Kristine and Searns, Robert M. *Trails for the Twenty-First Century, Planning, Design and Management Manual for Multi-Use Trails,* 2nd ed., Rails-to-Trails Conservancy, Washington D.C. 2001, Page 167.

ups and maintenance. They also arrange trail walks once a month when the weather is accommodating, to educate the locals and other advocates about the trail and its benefits. The Friends of the Cresheim Trail actively participate in meetings and discussions, involve other locals and continuously strive to maintain and improve their outreach efforts.

The signage that would further help to garner support and act as interpretive panels for the trail is very important. Though the signage at the South Hill Recreation Way trail appears to be adequate, more trailhead and explanatory panels about the railroad can be placed along the trail. The brochures by the Town of Ithaca could be reprinted and distributed. The signage and panels required at the Cresheim Trail would number many, especially if there are to be panels all along the trail explaining the the historic value of the Pennsylvania Railroad, Reading Railroad and the Cresheim branch, mile markers, the structures built along the railroad and various regulatory and hazard signs. The book *Signs, Trails, and Wayside Exhibits – Connecting People and Places* by Suzanne Trapp, Michael Gross and Ron Zimmerman gives good recommendations on the kinds and types of signs that can be used for trail interpretation.

Conclusion

No trail is ever complete. There is always room for improvement. By comparing and analyzing both trails in terms of benefits gained, historic value, conservation practices, relationship to other trails and interpretive strategies used, the advantages and disadvantages of the trails can be understood. Many lessons are also learned on how to enhance the usefulness of the trail or how to make it more useful.

The planning and preservation strategies discussed give an insight into designing and preserving both South Hill Recreation Way Trail and the Cresheim Trail.

CHAPTER 8. CONCLUSION

The Rails-to-Trails Conservancy has been making more efforts to convert abandoned railroads into recreation trails. With many more miles of rail lines being abandoned each year, there is tremendous potential for an interconnected trail network that could be a part of the nation's preservation efforts. Rail-trails offer the opportunity not only for use as transportation and recreation corridors, but also provide links to other important historical resources. A visible impact of SHRW is the historical marker and its proximity to the historic districts.

There are limitations that can be found in the study. The thesis is written to study only two trails and does not consider the thousand other trails that are found in the nation. The thesis can be used as reference for the other rail-trails that are being designed or are planned for design. But it must be kept in mind that not all the recommendations given in the thesis can be used for all trails. It is very difficult to include every bit of information regarding the conversion of the rail-trail, funding options and the preservation activities associated with it.

The limitations encountered for information about rail-trail conversion were the information regarding permits that would be required for cleaning up the land, any impacts to the environment and the legal process that may be required for the acquisition of the rail bed. The thesis does not cover the permits from any city department or local organizations. The land needs to be cleaned for laying the trail and construction permits would be necessary. These permits would be available through the city departments of Planning, Public Works or the Building Department.

Also, the State Historic Preservation Office would need to be contacted if the trail's location would impact its surroundings through Area of Potential Effect (APE).

The rail beds would generally have been sprayed with pesticide for killing any weed growth when the railroad was in use which may impact the land in the long run.[151] The City Department of Environmental and Conservation would need to be contacted for surveying and testing the land for chemicals and environmental concerns. This information would need to be written down in the State Environmental Quality Review Act's Environmental Impact Assessment.

The thesis only explored a few of the funding options, under the federal, state and local laws. There are many more different options available. For example, the National Endowment for the Humanities – America's Cultural & Historic Organizations Planning Grants, National Endowment for the Humanities – Interpreting America's Historic Places Planning Grants, National Endowment for the Humanities Implementation – Interpreting America's Historic Places Implementation Grants, North American Wetlands Conservation Act Small Grants Program, National Trust for Historic Preservation Partners in Tourism, Preserve America Grants, SAFEEA-LU – Safe Transportattion Program, SAFEEA-LU – Transportation Enhancements Program, Heritage Parks Program and the Tourism Cares Worldwide Grant Program.

Another limitation is the number of surveys required for both case studies. Surveys with the adjacent landowners and the city departments would be required for an exact count of users and also surveys with hotels nearby would have given a clearer

[151] Interview with Professor Richard Booth, City & Regional Planning Department, Cornell University. January 29, 2014.

account of the number of visitors and who would use the trail along with their other tourist activities.

The thesis can be supported with further research on the impact of trails on nearby houses. A thesis study by Jiyoon Song, *The Economic Impact of the Preservation and Adaptive Reuse of Railways in the United States: A Case of the High Line in New York City*, focuses on the economic impact of the High Line on neighboring real estate parcels. Similarly, the future economic impact of the South Hill Recreation Way and the Cresheim Trail within their localities can be studied and incorporated in this thesis.

In conclusion, the South Hill Recreation Way and the Cresheim Trail both have pros and cons that can be learned from the design, preservation strategies, community involvement and tourism; and can be improved on for future use and historic preservation purposes. Both case study trails have explored almost all the possibilities for advocacy and local support that are very important for designing and preserving rail-trails. Without proper support, building the rail trails would hit many roadblocks and eventually, may not even be constructed, like the Medicine Bow Rail-Trail, Wyoming.[152] Both trails also have preservation strategies, appropriate implementation methods and regular maintenance for protecting the land, infrastructure and surroundings through easements, community involvement and the assistance of the city departments.

[152] The Two Way. http://www.npr.org/blogs/thetwo-way/2014/03/10/288584936/family-trust-wins-supreme-court-fight-against-bike-trail?sc=17&f=1001. Accessed June 12, 2014.

APPENDIX A. STATE ENVIRONMENTAL QUALITY BOND ACT

The New York State Department of Conservation was founded in 1970 to help conserve, improve and protect natural resources in the state of New York. In 1972, the Environmental Quality Bond Act was approved. It allows funds to be provided for land acquisition, solid waste aid, sewage treatment and air pollution control. The act was amended in 1986 to include possible remediation of many hazardous waste sites, municipal solid waste landfill closure, forest preserve, historic preservation, municipal parks and environmentally sensitive lands. Any application that is filed under the State Environmental Quality Review Act is overseen and reviewed by the Department of Conservation.

The New York Code Article 52, Implementation of Environmental Quality Bond Act of 1986 has four titles that pertain to this project,

Title 1 – General Provisions

Section 52-0101 Definitions

Section 52-0103 Allocation of moneys

Section 52-0105 State assistance application procedure for title three of this article

Section 52-0107 Powers and duties of the Commissioner for title three of this article

Section 52-0109 Powers and duties of a municipality

Section 52-0111 Equal employment opportunity program

Section 52-0113 Minority and women-owned business enterprise program

Title 3 – Hazardous waste remediation projects

Section 52-0301 Projects: authorization and approval

Section 52-0303 Contracts with municipalities

Title 7 – Land acquisition, preservation and improvement projects

Section 52-0701 Approval and execution of State projects

Title 9 – Historic preservation, Municipal park and Urban cultural parks projects

Section 52-0901 Approval and execution of projects

Section 52-0903 Municipal regulations; limitations

Section 52-0905 Contracts

Section 52-0907 Restriction on alienation

Section 52-0909 Powers and duties of the commissioner

Section 52-0911 Compliance with the law

The New York Environmental Law § 52-0103 lays out the allocation of funds for specific purposes. For the remediation of hazardous waste sites and the closure of municipal landfills, a total of one billion two hundred million dollars was granted over the years, out of which one hundred million dollars was made available for state assistance payments towards the cost of the closure of municipal landfills and another one hundred thousand dollars for the study of hazardous waste disposal sites. For the acquisition, preservation and improvement of lands, for historic preservation and for municipal parks, two hundred fifty million dollars was granted.

The Bond Act also allows for participation of minorities and women as workers and businesses in programs. The goal is to make certain there are equal employment opportunities for women and women-owned business enterprises. For

more information regarding the act, its implementation and requirements, the New York State Department of Environmental Conservation has all the details.[153]

[153] New York State Department of Environmental Conservation. http://www.dec.ny.gov/regs/4492.html Accessed February 6, 2014.

APPENDIX B. NEW YORK STATE ENVIRONMENTAL QUALITY REVIEW ACT (NYSEQRA)

The New York State Environmental Quality Review Act was passed in 1975 and its purpose states that,

> *"It is the purpose of this act to declare a state policy which will encourage productive and enjoyable harmony between an and his environment; to promote efforts which will prevent or eliminate damage to the environment and enhance human and community resources; to enrich the understanding of the ecological systems, natural, human and community resources important to the people of the state."*

The NYSEQRA requires all federal and state projects to consider the environmental impacts that may be caused by the project. Major and federal projects are those adopted in policies, plans, programs, federal licensing, and permits, and also those projects that involve wildlife, bio resource area, noise pollution, air and water pollution, socio-economic impacts and human issues. These issues are collectively known as 'significant effects on the environment'. If there is no 'significant effect', then the State Environmental Quality Review Act is not required.

The process of filing the State Environmental Quality Review Act requires the completion of an Environmental Impact Assessment form. The completed Environmental Impact Assessment or the EIS contains all the information regarding

the type of project, determination of significance, duration of the project, site description, project description, zoning and planning information, and any environmental impacts caused directly or indirectly. This includes impact on land, water, air, plants and animals, agricultural land resources, aesthetic resources and historic and archaeological resources. The open space and recreation, transportation, energy, odor impacts, public health, and growth and character of the community or neighborhood and the mitigation measures for these problems must also be addressed.

Upon the completion of the draft assessment form, hearings may or may not be held by the agency filing the claim. The Notice of Completion of the Draft starts at the 30 Day public comment period. The hearing is a means to gain input and feedback from the public. If any changes need to be made to the draft, it is done after the hearing and must be filed with the State for approval. More information on the SEQR procedure and a step-by-step process can be found at the New York Department of Environmental Conservation website http://www.dec.ny.gov/permits/357.html

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